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COMPLICATIONS OF GASTRIC OPERATIONS*

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In the ten-year period now drawing to a close, the field of gastric surgery has widened. Previous to that many of the procedures now used were considered altogether too extensive. As our understanding of the mechanics of the many operations on the stomach continues to grow, the ingenuity which research centers has shown grows in proportion. Only a week ago a preliminary report of the substitution of the colon for a totally resected stomach was reported at the College of Surgeons meeting in Boston. The details of execution of this procedure do not come within the scope of this discussion, but include many of the essential fundamentals which I shall mention.

The complications of gastric operations arise directly as the result of failure to strictly adhere to fundamental knowledge. Lack of knowledge is not an excuse any longer. Lack of experience is rapidly fading from the picture as the education of the young surgeon becomes more mature before he sets forth on his career. Gastric surgery is the delight of the residents and is now approached by that group, as men of my day would approach an appendix or hernia. I have wondered many times if present day education does not lay more emphasis on the more complicated surgical procedures than they deserve, with the resulting lack of experience in the more common garden variety of surgical disease. Better anesthesia, wider and safer use of blood and its substitutes and the recognition of the physiological deficiencies have all contributed to make gastric operations easier, with the growing opinion that the gastric cripple is such by election.

In all operations on the stomach most complications are preventable if proper choice of operation is made for each individual patient. The keynote of prevention is largely necessary circulatory support during and immediately after the operation, together with adequate decompression of the intestinal tract during the period the patient needs to establish his recovery.

The duodenum is the site of the most prominent danger. Proper and satisfactory closure is occasionally difficult to achieve in both perforated ulcer and gastrectomy. The chronic ulcer of many years duration has created anatomical distortions that may be difficult to unravel. The tissues are frequently friable, adherent or severely scarred. Exclusion of the ulcer is frowned upon in many clinics but may be a valuable procedure in shortening the time of operation and insuring that it remain closed. Operation by exclusion, leaving the ulcer in place, should be occasionally used, and is less dangerous than draining with tubes, and should always be considered as a "stage" in gastrectomy. The patient should be so informed, and advised of the danger of gastro-jejunal ulcer if the second stage is not elected at a later date. Perforation of the duodenal stump may be frequently anticipated, and if any question of security of the closure should remain at the time of operation, a drain to the suture line, brought out through a stab wound, may save the patient the second trip to the operating room for its insertion. There should be no hurry to remove this drain, and it may be left for two weeks if any question of impaired gastro-intestinal function remains. It has been my experience to have a duodenal stump perforate 12 days after gastrectomy.

Operation by exclusion still allows the ulcer to perforate, either early or late and the very fact that it has not been removed should keep one constantly on guard during the immediate post-operative period. Adequate decompression can be accomplished with an inlying stomach or intestinal tube for the first two or three days, and by daily enemata thereafter. It has been my rule, if no contraindications exist, to leave a stomach tube in place on gravity drainage for 48 hours, irrigating it with an ounce of saline every hour or two while it is in place. Irrigation may be unnecessary if the

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tube drains well, but more often than not there will be some old blood in the remaining stomach which may tend to interrupt the flow. The contraindications to gastric tube drainage are difficult to enumerate and rest largely in the factors that make it intolerable to the patient. These factors may be anticipated, usually before the operation, and alternative methods of keeping the stomach and intestine decompressed may be elected at the time of operation.

Ambulation is recommended on the second day; the tube is removed, and small amounts of water by mouth are allowed. Each 12 hours after removal of the tube the gastric residue is measured. This measurement is continued at the same time interval until the amount is under 100 cc. The enema on the second or third day may be productive of considerable flatus, and should be given daily until the bowel activity becomes normal. In the gastric operation where responsibility for post-operative attention is divided among several of the resident staff, there may be a neglect of bowel activity, which will occasionally be the cause of a serious complication at the end of a week.

Perforation of the gastro-jejunal anastomosis may occur during the first week, and almost always happens when the decompression has been inadequate. Perforation at this point may occur as a result of impaired blood supply, and its frequency is in direct relation to the level of the resection. In high resection a wide berth must be given to the remaining blood supply on the greater curvature, and must be most meticulous when mobilization of the distal stomach is performed for transfer into the chest. Adequate post-operative decompression will give nature a better chance when the blood supply is not seriously threatened.

The type of anastomosis has much to do with perforation at this point. The tendency has become greater during the past two years to decrease the size of the gastro-jejunal opening, in an effort to prevent a "dumping syndrone." This latter has been one of the vague descriptions which we occasionally encounter, and the nature of what is happening has likewise been inadequately described. The term itself is undoubtedly a bad one and would not be sorely missed if it were eliminated completely. Whether the post-prandial discomfort is caused by edema around a small opening, or the admission of undigested food into the bowel too soon after it enters the stomach is of little consequence. My experience with this type of discomfort has fortunately been small, and in no instance have symptoms persisted longer than four or five months. The search for the answer to "after eating" discomfort will undoubtedly continue and each new discovery will not apply to all of the complaints. The emotional nature of these patients will present numerous descriptions, and each should be again individualized. Every surgeon must develop his own technique to constantly improve his operation and have fewer dissatisfied patients. In my hands a gastro-jejunal anastomosis 2½ cm. in diameter has caused the fewest headaches.

Obstruction following operation on the stomach or duodenum can be most troublesome. The repair of the perforated peptic ulcer, either in the duodenum or stomach itself may be exceedingly trying. One may frequently determine at the time of operation that the continuity of the gastro-intestinal tract has been violated. The large perforated ulcer surrounded by edema and inflammation is not only difficult to close, and will frequently tax the ingenuity of the surgeon, but also will represent the small percentage of cases that do not do well. In the presence of perforation prior to operation, extensive surgery should be avoided if at all possible. We read of the glowing reports of gastrectomy for perforated ulcer as a routine. But this procedure should be reserved for the exception. In evaluating the type of operation, the surgeon must try to design his approach to get the patient well enough to operate on again, under circumstances that find both patient and surgeon more equal to the task at hand. To depend on tube drainage for the relief of the edema is dangerous, and should never be employed in those patients who have had any history suggestive of partial obstruction prior to the perforation. Gastro-enterostomy may be the operation of choice in addition to closure of the perforation, may be quickly done, and requires a minimum of trauma to an already overtaxed peritoneal cavity. It is the operation that one admits too often he should have done when the mortality is defended. It seems needless to add that anterior gastro-enterostomy in perference to posterior, still further lessens the risk.

Obstruction following gastrectomy may occur in either loop of bowel or at the stoma. The troublesome obstructions which I have experienced have arisen after the first week and failed to respond to tube decompression. Re-operation may not be too long delayed in these patients, and when obstruction is complete it will almost make its own diagnosis. Delay in operating on any small bowel obstruction is dangerous, with the attending disturbances of dehydration down through alkalosis, tetany and death. Delay is probably too often advised in early small bowel obstruction, in the vain hope that another day will find the patient better able to tolerate another procedure. Complete obstruction at the gastro-jejunal stoma is essentially small bowel obstruction and should always be so treated by early surgical correction.

In preparing these patients for operation, strict

attention must be given to electrolyte balance. With patients whose chloride metabolism has been even slightly disturbed, the use of intravenous hypertonic saline is always well tolerated. In this hospital we are using 500 cc of 5% sodium chloride given intravenously at a rate not to exceed 60 drops a minute. I am aware that this procedure violates the teachings in physiology of only a few years ago, where any solution not isotonic was thought to be contraindicated. In patients who need sodium chloride, a 10% solution may be used in lesser amounts with equally good results. The metabolism of potassium is still not well understood by most clinicians, largely because of the difficulties attending its measurement. It is rapidly gaining ground and will be a "must" in some of these problem cases in another short while.

The flame photometer is still not completely adequate, is still expensive, and undergoes a revision again at about the time the technician has learned how to use it well. The use of the electrocardiogram should be more generally employed both before and after operation. In this manner, the changes that occur during the post-operative course may be observed and adequately treated. In patients who have developed post-operative obstruction, the electrocardiogram is still valuable and may be reported as being consistent with potassium deficiency. Potassium deficiency should always be considered in the patient who fails to respond to adequate sodium replacement as I have discussed above. Blood transfusion remains the safest method of correcting a potassium deficiency quickly. The patient with refractory alkalosis will frequently have his process reversed with one pint of blood. It has been my observation that a pint of blood that is nearing its expiration date of 21 days will do this job best. For one who has so consistently advised fresh blood for so many years, this may strike a strange note. It is very simply explained. The potassium content of stored blood will rise from 5 meq/L to 25 meq/L, in 21 days, with a slight drop in sodium, and a chloride level that remains constant. As we have made whole blood safe for transfusion after 3 weeks of storage, with no appreciable rise in reactions, it naturally follows as a logical and safe means of injecting potassium. It likewise, is simple arithmetic that a pint of blood containing 25 meq/L of potassium is 5 times as effective as a pint of fresh blood that contains 5 meq/L.

Obstruction may occur beyond the anastomosis in either the emergency or elective operation. Other pathology in the G.I. tract can be responsible, but represents a very small percentage. Exploration of the abdomen in patients with a perforated ulcer is not commonly done. Aspiration of the pelvis before closing the peritoneum should be a routine, and may be very quickly done with no added trauma. Aspiration of old blood inadvertently spilled during gastrectomy is always desirable, and most frequently will be found in the upper left quadrant. If allowed to remain it may have time to act as a culture medium before its absorption, despite the usual effective use of antibiotics.

Complications in the biliary tract are not too common, but are worthy of mention. When the duodenum appears easy to mobilize particularly in the long standing ulcer, the location of the common duct should be determined before proceeding. Injury may be very easy in turning in the duodenal stump. Exploration of the common duct at the time of gastrectomy, with the insertion of the long limb of a T-tube into the duodenum may be accomplished quickly and should be done in all instances, when it appears to be too close to the duodenal suture line. On the other hand a transitory post-operative icterus is not uncommon and should not be alarming unless it becomes progressively worse.

If this T-tube is used it is best left in place until all fibroblastic activity has ceased. This may take from 3 months to a year, all recent opinions to the contrary notwithstanding. Re-operation for jaundice following gastrectomy should never be hurried.

Gall stones and ulcer do not commonly go together but may occasionally be seen. One should always ask himself in the presence of a pathological gall bladder whether a defect shown by x-ray may be caused by the gall bladder. If both ulcer and gall bladder pathology can be demonstrated, and gastrectomy still appears necessary, the gall bladder should be removed first. It is much easier to treat at the time it is exposed than to risk the complicating factors that may be produced if it is left in.

It has been a recent experience of mine to perform a sub-total gastrectomy for bleeding ulcer in a patient with a normal gall bladder in every respect at the time of operation. Twelve days after operation and following a most benign post-operative course he began to vomit, and complained of vague abdominal distress. His temperature and blood studies were not revealing. X-ray of his stomach demonstrated what appeared to be a dilated efferent loop, with obstruction. I operated upon him after about 6 hours of study, for intestinal obstruction, only to find a gangrenous gall bladder with bile seeping through a soft area in the fundus. Cholecystectomy was followed by an uneventful course.

Lesions of the stomach may involve the colon, particularly if on the greater curvature or posterior wall. The contraindication to colon resection is lack of adequate preparation. In contemplating operation for gastric lesions located as described above, one must be sufficiently alert to expect to

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CANCER OF THE LUNG*

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CANCER of the lung shares with every form of visceral cancer the reputation of an inexorable and treacherous enemy. There is little need here to embellish the classic picture of the disease: cough, blood-spitting, weight-loss, fever and chest pain are its cardinal symptoms; bronchial obstruction, unilateral wheeze, pleural effusion and clubbing its physical signs. The urgent problem is recognition of cancer that is masquerading as "atypical pneumonia", a "touch of virus", or a rationalized but unexplained shadow in the chest film, and it becomes important to consider the symptoms, usually of a commonplace nature, that demand an x-ray examination of the chest. A change in cough habits should sound a warning, or the day-to-day streaking of the sputum which may be attributed to the fact that the patient is coughing harder than usual, but which has the same significance as occult blood in the stool of gastro-intestinal malignancy. Careful consideration must be given to the trivial respiratory infection which may precipitate complete bronchial block; the patient cannot throw off the "cold" which follows the way he has always done in the past.

There is, of course, the individual who, for one reason or another, steps into a chest survey or has a "routine" chest film taken. Instead of tuberculosis, the shadow of a peripheral or mediastinal mass is discovered and the responsibility of excluding cancer is thrust upon the physician. The problem is not an easy one, although in a general way, exploratory thoracotomy has achieved about the same safety, if not the convenience, of an exploratory laparotomy. It is to be hoped that the many explorations that have been done for asymptomatic chest shadows may furnish data upon which to improve our differential diagnosis of these lesions in the future. It is fortunate that the form of tuberculosis that is confused with tumor of the lung can ordinarily be excised with safety and, in fact, is probably best treated by excision.

*From papers read before the Rhode Island Medical Society at Annual Cancer Conferences, October 26, 1949 and October 18, 1950.

At this point, I should like to digress on the subject of what constitutes an adequate radiologic examination of the chest, particularly where the suspicion of carcinoma has been raised. I would not trespass in the radiologist's domain except to point out that we rely on him to fluoroscope the patient, to note if there is evidence of trapped air and to define areas of consolidation or collapse with suitable oblique and lateral films. We trust also that he will not indulge in lipiodol bronchography, for not only is it usually unnecessary, but such evidence is poor indeed upon which to decide the nature and level of bronchial block and it may confuse indefinitely later films of the patient. Lipiodol may be indicated in certain cases of carcinoma of the lung, but only under special circumstances to answer a specific question.

The physician confronted with a diagnosis by x-ray of a probable carcinoma of the lung — or "cancer cannot be excluded" — may well inquire as to further diagnostic steps he should take before referring the patient for surgery. In a large center this may not disturb him greatly, but if referral involves transport to a distant city or considerable domestic dislocation, the physician may well — in fact, should — pursue the problem further. Four important steps come to mind.

First, careful palpation of the supraclavicular areas for sentinel nodes. It would seem superfluous to mention this were it not for the surprising frequency with which these are missed when their discovery and biopsy might have furnished an accurate diagnosis and a firm basis upon which to plan the patient's management.

Second, aspiration of pleural effusion, if present. Fluid so obtained may contain tumor cells, although their identification may tax even the most experienced pathologist. If the fluid is frankly bloody, the outlook for the patient is bad, assuming always that the diagnosis of cancer has been established by other means. If the fluid is small in amount and clear it does not, of itself, constitute a bar to surgery although the prospect is a discouraging one.

Third, collection of fresh sputum for cytologic examination. (We assume that tuberculosis has been considered and the organisms searched for.) By this method a positive diagnosis can be made in about 70% of patients who have cancer of the

lung. False positives are rare but do occur just often enough to be disturbing. Done in conjunction with irrigation and aspiration of the limbs of the bronchial tree, cytologic examination of the sputum has extended the range of the bronchoscope. One would not operate solely on the basis of a positive smear, nor withhold operation merely because it was negative, but in the borderline case it may give extremely useful information.

Bronchoscopy is the fourth important step referred to. Although the value of this procedure goes without saying, its indiscriminate use is to be deplored. To be of maximum value it should yield information beyond merely a specimen for histologic study. It should establish the integrity of the recurrent nerves which may be knocked out by mediastinal extension of a tumor; it should establish the level of bronchial encroachment; and by observation of the carina and fixation of the major bronchi, it should suggest the degree of mediastinal involvement. This information may or may not make a thoracotomy unnecessary, but note that this information plays an integral part in the overall surgical management of the patient and therefore is usually best left to the team that is finally charged with the surgical responsibility.

The criteria of inoperability in carcinoma of the lung can be defined only in relation to the individual patient except for such obvious manifestations of disseminated cancer as pathologic fracture, cerebral or central nervous system metastases, and the like. Cancer of the lung is in a strategic position to seed the body with hematogenous deposits and is prone to do so.

Obviously the general state of the patient may preclude operation, but age is accorded less and less respect and debility can often be corrected. It has been our practice to consider the patient's ability to perform his usual daily tasks without unusual dyspnoea as a measure of his exercise tolerance, and the apparent rather than actual age of the patient has entered into calculation of the risk. Cardiac reserve is subject to somewhat more accurate analysis.

Massive pleural effusion, particularly if bloody, is usually considered evidence of incurability by surgical means. A paralyzed vocal cord, a Horner's syndrome, cervical and brachial plexus pain generally indicate that the disease is not even locally resectable; intercostal pain does not, especially when the chest film indicates that involvement is reasonably far out along the intercostal nerve. It is to the patient who is suffering from severe intercostal pain that resection, if it can be effected, may afford the greatest degree of palliation even if the prospect of cure is dim indeed.

Evidence of superior mediastinal compression usually means that surgery will be futile except insofar as exploration may be necessary to establish an accurate diagnosis. In this regard, aspiration biopsy must be considered and we have reserved its use for those patients in whom the criteria of inoperability are convincing but in whom we lack the histological proof that may be needed to set up an intelligent plan of x-ray treatment. The latter may bring considerable relief of pain and may also alleviate or postpone many of the symptoms of bronchial and mediastinal obstruction.

Operability and resectability rates in cancer of the lung are the product of so many factors that their informational value is limited. We (1) have recently surveyed the results of surgical management of carcinoma of the lung at the Massachusetts General Hospital and determined that in the 20 year period, 1930-1950, of 681 cases proven to have carcinoma of the lung, 294 or 43.2% were explored and 171 or 25.1% (of proven cases) resected. In this same period 1130 presumptive diagnoses of cancer of the lung were made. This 43.2% operability must be considered against a background of all patients admitted to the *medical and surgical* services of a large general hospital, as well as those referred to the private divisions of that hospital. They can be applied to the community at large only after consideration of these limitations. Furthermore, it is virtually impossible to discover what percentage of resections was done with a reasonably optimistic prospect of cure and how many were done on a "palliative" basis.

Perhaps the present operative mortality rate in resections undertaken for carcinoma can best be characterized as "reasonable." For example, in 53 resections for cancer done at the Massachusetts General in 1948 and 1949 there were two deaths (one pneumonectomy and one lobectomy). An expected mortality of between 5% and 10% is a reasonable figure to enter into the "calculated risk", and represents the number of times the ice will be just a little too thin. Fortunately the problem of serious post-operative infection, though not eliminated, has been reduced to a minimum.

The tremendous reduction of serious infection has done a great deal to improve the immediate post-operative morbidity following resection of the lung. On the other hand, long-term morbidity is extremely hard to assess or predict. It is not difficult to select patients who have tolerated the loss of one lung with surprising ease. It is also not too difficult to cite examples of respiratory cripples and chronic invalids among these patients. Without doubt a certain number of patients will suffer from their diminished pulmonary reserve as degenerative diseases of the cardiovascular system throw a greater strain upon the lesser circulation. The physiologic disability may be none the less real because it is hidden in terms of reserve. The most

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common disability, shortness of breath, has a tremendous psychic component, as do chronic fatigue and heat intolerance.

What are the results of resection for cancer of the lung? Again to refer to the survey quoted above, it was found that for all patients who underwent resection, either pneumonectomy or lobectomy, for cancer prior to 1948, a survival curve could be constructed that compared favorably with other visceral cancers. If a tumor could be resected, either by pneumonectomy or lobectomy, 52% (61/118) survived one year, 38% (45/118) survived two years, 26% (27/104) three years, 20% (17/86) four years, and 14% (10/69) survived five years. Since the calculation of these survivals included experience in the years when operative mortality was by present standards excessively high, it was thought reasonable to calculate survival on the basis of patients who left the hospital alive and hence had the opportunity to survive. Obviously, this set the survival curve at a higher level. It was found that of 46 who underwent resection more than five years prior to the study and who left the hospital alive, 10 or 22% survived 5 years or more. The reader is referred to the original report for further break-down of these figures and for a discussion of the place of lobectomy in the treatment of cancer of the lung. However, a few pertinent points should be made here. The survival rates are based upon 100% follow-up of all patients undergoing resection, a matter of great importance when dealing with cancer statistics involving relatively small numbers. Secondly, adenoma of the bronchus was recognized as an entity separate from cancer of the lung for, no matter what disagreement there may be concerning its cell characteristics, its clinical behavior, particularly in its excellent survival rate following resection, is such as to warrant separate consideration.

It must be remembered that the survival rate of 14% is of those patients in whom resection was possible, a mere 25% of the proven cases. The salvage is therefore only 3.5% of all patients in whom the diagnosis could be proven. The challenge and the hope lie in the education of the patient and the stimulation of the doctor. Panic must be avoided in the patient, inertia in the physician.

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[1] Churchill, E. D., Sweet, R. H., Soutter, L., Scannell, J. G.: The Surgical Management of Carcinoma of the Lung. Jour. Thor. Surg. 20: 349-365, September, 1950.

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find either the transverse mesocolon or colon itself somehow involved in the process. The mid-colic artery seems to have an unusual affinity for the posterior wall ulcer or carcinoma on the greater curvature, and when involved must be divided. In resection of the transverse colon, in the course of gastrectomy, the mesentery should be attacked first, followed by mobilization of both hepatic and splenic flexures. I have now performed this combined procedure four times for carcinoma. Each patient has done well, and three are still living. The fourth case was a 75 year old man with pernicious anemia who was quite well for over 3 years. His death is presumed to be due to recurrence of his carcinoma.

The posterior wall ulcer that is attached to the pancreas may be excised, cauterized and left attached, in preference to the disturbing bleeding which may be encountered in its removal. Removal should not be performed if the lesion is an ulcer.

Hemorrhage following gastrectomy is most disturbing. Treatment needs to be individualized. Multiple transfusions may maintain the patient, and careful observation of his blood studies at frequent intervals throughout the day and night should determine the course to take. It is difficult to advise re-operation at an early hour, but should be considered quickly if ground is being lost. Wound infection and evisceration need no comment except that they be treated in the usually accepted manner.

Vagotomy may be classed as a gastric operation, I presume. I have performed it only in the course of total gastrectomy. It is my feeling that vagotomy is a poor substitute for more definitive surgery, whether staged or not. I am aware that it is thought well of in some clinics, and it has been occasionally performed in this hospital. The delayed emptying of the stomach even with gastroenterostomy seems a natural sequence to the division of such important structures. It has not been completely accepted in many other clinics, and reserved for the most carefully selected cases. As I have listened to many discussions during the past few years, it is my feeling that vagotomy for ulcer will not stand the test of time, and will be discarded as a fad for further investigation by another generation. It is possible that all of these complications will become eliminated as the star of cortisone and A C T H continues to rise.

Summary

1. Complications of Gastric Operations have been discussed.
2. Adequate post-operative decompression is emphasized as the best means of preventing many of them.
3. Stage operations on the stomach are given prominent recommendation.

MEDICAL ASPECTS OF ATOMIC EXPLOSIONS*

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THE ATOMIC BOMB is primarily a strategic weapon, and the choice of target and method of employment require the evaluation of a number of factors. The one property that makes an atomic bomb explosion different from that of any other type of weapon is the nuclear radiation produced. Thus far five atomic bombs have been detonated, three of them under test conditions. The first bomb was set off under experimental conditions from a tower in New Mexico in July of 1945. The second bomb was dropped on the city of Hiroshima from a B-29 bomber on August 6, 1945. Over four square miles of the city were instantly and completely destroyed. 66,000 people were dead or missing and 69,000 injured. Three days later another B-29 dropped an atomic bomb on Nagasaki, totally destroying 1.9 square miles of the city. The number of persons dead and missing in Nagasaki were 39,000. 25,000 more were injured. The fourth and fifth atomic bombs were dropped at Bikini as part of an atomic bomb experiment.

The detonation of a conventional atomic bomb such as was used over Japan liberates an amount of energy about equivalent to that produced by the explosion of 20,000 tons of TNT. This is the same amount of energy as is liberated when 2 lbs. of uranium 235 are completely fissioned, but since all the atoms present in the uranium of an atomic bomb are not split, it consequently takes more than 2 lbs. of uranium to produce such an explosion.

Underlying Principle

Uranium 235 and plutonium are said to be the substances used in the production of such a bomb. The underlying principle is that of a tremendously rapid chain reaction in which the neutrons liberated by the disintegration of one atom of uranium go on to cause disintegration of other atoms of uranium with the production of more atom splitting neutrons. At the same time tremendous amounts of energy are liberated by the uranium which is split. Since not all of the neutrons find their target but may escape the confines of the mass of uranium and therefore be unable to cause fission, it is necessary to have a quantity of uranium of such size that its surface area is relatively small and that neutron loss will be small. This quantity of uranium is called the critical size or mass. A quantity smaller than this will not explode and a quantity larger than this will explode instantaneously. It is evident, therefore, that an atomic bomb will consist of two or more masses of uranium, each of smaller than critical size. The detonation of such a bomb will occur when these subcritical masses are brought together to form a mass of greater than critical size. The method employed to achieve this "bringing together"in such a way that it occurs almost instantaneously is the secret of the detonation of an atomic bomb.

An atomic explosion is associated with a number of characteristic phenomena, some of which produce visible effects while others are not directly apparent. Certain aspects of these phenomena will depend on various circumstances such as whether the bomb is exploded in the air, under water or on the ground. If an explosion takes place in the air at a distance of about 2,000 feet above the surface, at the instant of the explosion there is formed a tremendous ball of fire, the interior of which has temperatures ranging in the hundreds of thousands of degrees centigrade. For example, one ten thousandth of a second after the explosion has occurred the radius of the ball of fire is about fifty feet and the temperature within the ball of fire is in the vicinity of three hundred thousand degrees centigrade. The ball of fire continues to grow rapidly in size for about fifteen thousandths of a second, by which time its radius has increased to approximately 350 feet. The temperature of the gases within the ball of fire causes it to rise rapidly and within one minute after the explosion it has risen to about 15,000 feet. When it has risen to a height of between 40,000 and 60,000 feet, the density of the gas will equal that of the surrounding air, and the gas cloud will spread out horizontally for a distance of several miles to form the characteristic mushroom-shaped cloud. The latter, having reached the final stage of

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its development, remains visible for an hour or more until it is dispersed into the surrounding atmosphere by the winds. When the radioactive particles in the cloud collide with particles of dirt in the atmosphere, they generally adhere to them, and consequently the dust in the cloud becomes radioactive. When the violence of the disturbance due to the bomb has subsided, the contaminated dirt particles gradually fall back to earth, giving rise to the phenomenon known as the "fall-out." Generally speaking, the fall-out is probably not dangerous as a radiation hazard. However, if a bomb were detonated close to the earth, a situation which is uneconomical from the standpoint of its destructive effect, considerable amounts of dirt and other debris would be sucked up into the radioactive cloud and the fall-out might then be considered a potential hazard. Also of some danger would be the fall-out occurring if the mushroom cloud collided with a rain cloud, resulting in rapid, concentrated fall of the radioactive materials in the cloud.

Shock Wave

Associated with the ball of fire a shock wave develops in the air around it and travels rapidly away from the center of the explosion. The essential features of the shock wave are an abrupt rise in pressure travelling away from the center of the explosion, and this is followed several seconds later by a wave travelling in the opposite direction towards the center of the explosion to replace the partial vacuum. Winds with speeds from 700-800 miles an hour occur during the pressure phase of the blast. It will be seen, therefore, that during the explosion of an atomic bomb a ball of fire forms, grows rapidly and rises rapidly to the stratosphere. Associated with this there is a strong air blast, which travels outward at a high rate of speed and this is followed several seconds later by a wind travelling towards the area of the explosion and rising in the thermal updraughts caused by the intense heat of the explosion. It is this returning wind, which blows over ground zero and then rises up into the sky that is responsible for the clearing of the area of radioactive fission products, which have been spattered on the ground. Hence, there was little lingering radioactivity present in the ground immediately below the explosions over Hiroshima and Nagasaki.

In addition to the blast wave, other types of energy are released by the bomb. Radiant energy in the form of heat is released and causes temperatures in the region of four to five thousand degrees centigrade to appear at some distance from the bomb for a fraction of a second. There is also a tremendous flash of visible light. In addition, ultraviolet light is given off in large quantities. Lastly, x-rays and gamma rays, which are very strong x-rays, are given off and these cause most of the dangerous irradiation effects because of their extreme penetrability. These forms of radiant energy, namely heat, light, ultraviolet, x- and gamma rays are all electromagnetic waves and all travel at the speed of light—186,000 miles per second. They are responsible for the flash burns and the irradiation sickness which occur following a bomb explosion.

In addition to the electromagnetic waves, which are given off by the explosion of an atomic bomb, there are radioactive particles which are emitted. These are: (1) The alpha particle: This is not immediately dangerous as far as external irradiation is concerned because it is not penetrating. On the other hand, the ingestion of an alpha particle emitter is extremely hazardous. (2) The beta particle: This is a high speed electron. It is not particularly dangerous from an external irradiation point-of-view but again is extremely dangerous when ingested. (3) The neutron: This has a range of about 1,000 yards, is very penetrating and will cause induced radioactivity. It will penetrate lead but not lighter substances such as water. However, those people subjected to irradiation by neutrons are also close enough to the center of the blast probably to be killed by that. Finally, *fission products*—products of the breakdown of the uranium or plutonium used in the bomb are produced by the explosion. In all there are fifty or more radioactive forms of elements which are produced. They have half lives of from several minutes to millions of years. However, many of these are swept upwards by the high velocity wind, which blows back towards the center of the explosion after the blast wave.

Destructive Effects

Having described in brief what occurs when an atomic bomb explodes, I would next like to describe its destructive effects on a city such as ours. The main destructive forces against buildings and personnel are the *blast wave, heat* and *radiation.* Virtually complete destruction will occur out to a radius of approximately one-half mile from ground zero corresponding to an area of about three-quarters of a square mile. In this space there will be complete destruction of buildings and death of nearly 100 per cent of the personnel due to blast, fire and radiation. Severe damage, that is major structural damage resulting in the collapse or liability to collapse of buildings, will occur to a radius slightly in excess of one mile from ground zero. This corresponds to an area of four square miles. From the one-half mile to the one mile radius there will be a heavy mortality of personnel—from 99 to 50 per cent. Moderate damage short of major structural damage but sufficient to render the structure unusable until repaired will occur

out to a radius of approximately 2 miles, resulting in an area of 8 square miles in which the damage ranges from moderate to destructive. In this outer segment, from one to two miles, deaths from radiation and other injuries will range from 50 to 0 per cent. Beyond two miles there will be little danger from radioactive irradiation. Partial and light damage will occur at a distance of from 2-4 miles away from the blast. Some wooden buildings will be severely damaged and this will also result in personnel injury. Within the zero to 1½ mile radius a tremendous fire will start caused by the high temperature, 4-5,000 degrees centigrade at this distance from the bomb. This fire is usually referred to as the "fire storm."

Types of Injuries

The types of injury produced by the bomb fall into three categories: Burns, trauma and irradiation. Of these 85 per cent will consist of trauma and burns and about 15 per cent of irradiation injury. Trauma will consist of about 11 per cent fractures, 37 per cent lacerations and 52 per cent contusions, whereas of the burns 95 per cent will be flash burns and 5 per cent secondary or ordinary fire burns.

The blast itself is different from that of ordinary high explosives in that it does not have the same trip-hammer effect, and visceral and blast effects are not noted. The incidence of perforated ear drums, for instance, is low. The distribution and amount of secondary trauma depend on the distance from the ground zero of the explosion. The low incidence of fractures is probably due to the inability of people with severe fractures to get aid because many undoubtedly perished in collapsed buildings. The fractures and contusions are all of the ordinary type. The lacerations are of interest since they are almost all due to flying glass and multiple lacerations due to glass splinters are common. It is important to emphasize here that proper first aid and medical treatment for patients suffering from trauma is essential to obtain wound healing in two weeks for thereafter the major effects of irradiation sickness begin to appear. Even though the casualties receive a sublethal dose of irradiation their unhealed wounds will break down, infection will supervene and death may result from a relatively minor injury. The largest and most important category of atomic bomb injury is the burn. This group of injury also can be divided into primary, due to the bomb per se, and secondary, due to the burning buildings. Approximately 95 per cent are due to the bomb per se — that is, a flash burn, whereas 5 per cent of the burns are caused by fires in buildings and debris. The energy that produces this high incidence of primary burns has certain interesting characteristics. The heat is intense and largely radiant with extremely high ultraviolet visible and infrared components. The exposure is very brief, probably less than a second. The severity of the burn is directly related to the distance from the ground zero of the explosion. Because the thermal energy is largely radiant, its effects are modified by the shading of buildings and the angle at which the radiation comes in contact with the individual. Clothing may serve as sufficient protection in some cases, and light clothing will reflect much of the radiant energy. Conversely dark clothing will absorb the energy and cause burns. A person wearing a blouse with dark polka dots might well have the polka dots burned onto the skin, whereas the areas of skin underneath the white areas might be unharmed. So-called profile burns are common, the parts directly exposed to the flash being burned most severely. The low incidence of plain burns has been explained on the basis of the time lag between the bomb burst and the onset of fires. It is said that people escaped the fires if they were not severely injured. Those trapped in burning buildings perished and no reliable figures are available as to their numbers.

Only 15 per cent of the injuries are due to irradiation disease. This is largely due to irradiation by gamma rays and occurs only within a two-mile radius from ground zero. The amount of irradiation which an individual will receive again depends on his distance from ground zero and is also affected by any structural building that he might be in depending on the thickness of the concrete or the amount of ground between him and the ground zero of the explosion. The radiation syndrome appears after a latent period of anywhere from one hour to two weeks, the more severe cases occurring earlier. In many instances, of course, radiation sickness complicates injuries of the traumatic or burn type.

Casualty Estimates

Having described the types of injuries which might be expected after the detonation of an atomic bomb over a city, it might be interesting to estimate the total number of hospital patients and ambulatory patients that one might expect as well as the total number of deaths following such an explosion. At the moment of the explosion 20,000 deaths are immediately expected. At the end of the first week after the explosion it has been estimated that the total number of patients requiring hospitalization will be around 40,000. The total number of ambulatory patients who will seek treatment during this one week period will be in the neighborhood of 20,000. The total number of deaths during this period will be 20,000. At the end of the second week there will be a total of 35,000 hospital patients, a total of 15,000 ambulatory patients and a total number of deaths, not counting the immediate

continued on next page

deaths, of 30,000. These figures indicate the scope of the immediate medical problems involved.

It is clear from the above remarks that the explosion of an atomic bomb over a city such as Providence would cause a degree of death and injury that would indeed be difficult to cope with. Where 15 per cent of the casualties will suffer irradiation damage and 85 per cent traumatic and burn injury the need for an adequate blood program is obvious. The need for the stock piling of antibiotics is also evident. In fact, the need for a well integrated defense against the atomic bomb is clear and it is only through such a defense that many lives which would otherwise be lost can be saved. A defense plan to cope with a disaster of this magnitude is now being formulated. Any city struck by a bomb will require outside assistance but much can be done by the survivors if plans have been made beforehand.

Rescue efforts would have to be centralized and directed from a control room situated outside any likely target area. The chief of operations along with a committee consisting of experts from police, fire, evacuation and transportation, medical, welfare, public health, Red Cross and civilian defense departments would direct activities and coordinate the effort. The medical department would be responsible for the treatment of the injured. It must be organized into first aid stations, casualty clearing stations, auxiliary hospital units and regular hospitals. The first aid stations would render first aid. Casualty clearing stations would treat shock and do minor surgery. Their blood would come from local or Red Cross blood banks set up at their stations. Auxiliary hospital units would be from other cities and would consist of mobile operating teams complete with mobile x-ray units, laboratory units and their own blood banks and blood taking equipment. These teams would treat the cases of severe trauma and burns. The regular hospitals left in operation would receive and treat mainly the burns and irradiation diseases. They would operate their regular blood banks.

Several important materials will have to be stock piled. These are bandages, antibiotics, cots and blankets and blood taking equipment. While the entire population should probably be typed in time, all communities should have readily available a list of persons who have donated blood in the past and whose type is therefore accurately recorded. This is particularly true of type O donors. In addition, it will be necessary to have readily available a large number of people with the technical skill required to draw blood. These persons will have to be trained in advance, of course. I mention this in detail because it has been estimated that for a catastrophe such as occurred at Hiroshima at least 250,000 pints of blood will be needed to treat the victims.

Obviously much remains to be done to prepare for such a disaster. Despite the overwhelming destruction proper planning will save many lives.

Woonsocket Call Photo

AT MIDWINTER MEETING

Dr. Elmer Hess (left) of Erie, Pennsylvania, dinner speaker, Dr. Dean Sherwood Luce of Canton, Massachusetts, A.M.A. "General Practitioner of the Year", and Dr. Charles J. Ashworth (right) President of the Rhode Island Medical Society.

The RHODE ISLAND MEDICAL JOURNAL

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QUICK AND POOR MEDICAL NEWS

Much amusement has been created by a little cartoon, showing a patient sitting on an examination stool while the doctor has run into the back room and is anxiously scanning a popular magazine to see what the latest information is on the diagnosis and treatment. This is too true to be altogether funny. The public are getting their medical information quicker than the doctors are. We are ignoring, right here, the question of accuracy of this information.

In the first week in January, we received a news release with the instruction that we could make it public on January 8. This told of an article in the coming January number of the American Journal of Roentgenology and Radium Therapy. Dr. Sosman and others of the Peter Bent Brigham Hospital were writing of the bad effects of vitamins. We went to two large medical libraries and found that that journal routinely arrived about the 23rd or 24th of the month. We wonder how many patients walked into doctors' offices and found the poor dumb clucks there had not had time to read their public literature and hence knew nothing about this latest medical news.

Our local newspaper which, incidentally, we believe is careful in the information which it spreads to the public about clinical matters, called us up recently to inquire about the value of an article in the New England Journal of Medicine. It was by Professor Lowell and others of the Department of Medicine of Boston University, and dealt with the antihistaminic drugs in the treatment of the common cold. Our copy of the New England Journal had arrived that morning. We opened it and did not find the article. One week after the paper had printed this vital medical news our next copy of the New England Journal arrived and there we found the article.

Frequently, TIME has an extract from the Journal of the American Medical Association appearing certainly as soon as we get our American Medical Association Journal, if not sooner. The doctors have to be pretty prompt in perusing their Journal or they find themselves ignorant and awkward before their patients.

We don't think the doctors are getting a fair deal from the medical journals when such favoritism is being shown to the lay public. What makes the whole thing rankle more is the fact that the news is usually doctored before being presented to the public. It seems to be necessary to scare the public greatly or to give them a tremendous euphoria. The modern overuse of vitamins is undoubtedly due to spectacularly exaggerated articles in the periodical literature presented to the public. Medical journals have presented just as startling stories of the harm done by the overuse of vitamins. We do not remember seeing this put in the lay press.

continued on next page

There have been elaborate and careful investigations of the use of antihistamines for the common cold. The article referred to above by Professor Lowell and others is an excellent example of a high grade piece of work. They studied a large number of cases. They took great precautions that neither the patient nor the person administering the drug should know whether or not a placebo was being used. Their conclusions were that there was no effect from the antihistamines. In England, where they have for years been elaborately studying the common cold, the same type of investigation was done on the same scale, and the same results were obtained.

The Journal of the American Medical Association has reported similar investigations. Yet in our most popular and least trustworthy magazine, the public has been told that antihistamines have undoubtedly proven their worth, and to back this up, there are numerous papers quoted where antihistamines have been used and the users have reported handsome results. There is not the slightest hint in these stories of any attempt to leave the users ignorant as to what drug they were using and thus to eliminate autosuggestion. In the large series reported in England, the most enthusiastic endorsement of antihistamines was received from a New Zealander. A check-up showed that he had received a placebo.

The popular magazines are not playing fair with the public, and we don't think the medical press should play into their hands by giving them information before the medical readers get it.

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ANNUAL MEETING R. I. MEDICAL SOCIETY

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CORRESPONDENCE

INFLUENZA INOCULATIONS

February 26, 1951

To the Editor of the Journal:

A standard cliche of Dr. Chapin was "thinking is a painful process." The unthinking action of many of the medical profession usually brought forth this expression from him.

The attention of the Writer has recently been called to the effect that many physicians are insisting upon inoculating their private patients against influenza. While it is true that it is the responsibility of the private practitioner to practice preventive medicine as well as curative medicine and to protect his patients from various diseases, it is equally true that the private practitioner should not indiscriminantly inoculate his patients. Typhoid fever can be used as an example, since proper water supply and sewage disposal systems have done a great deal toward eliminating this disease, it is fairly well recognized that typhoid fever inoculations are not given locally to the population. Typhoid inoculations are given to the local population only when we know that there has been a possibility of a breakdown in the local water supply system or where the individual concerned may be travelling into an area where there may be possibility for typhoid to develop.

Similarly in the case of measles, it is a recognized practice to wait until we feel that the infant has been exposed to measles before we give the measles inoculations. This is done because in measles, inoculations of globulin gives only a temporary immunity.

Let us consider the known facts regarding influenza inoculations. The duration of immunity is short. There are different types of influenza vaccine. Each specific for the type of organism. The available influenza vaccine is egg-grown and therefore frequent inoculations may develop a sensitivity to egg.

Therefore is it not logical that before indiscriminate inoculation against influenza is accomplished, we should assure ourselves first of the type of influenza prevalent in the community before inoculating the individual with the influenza serum to prevent the disease. If the disease is of a mild type as it appears at present, the use of antibiotics will prevent secondary complications which in the final analysis are the danger.

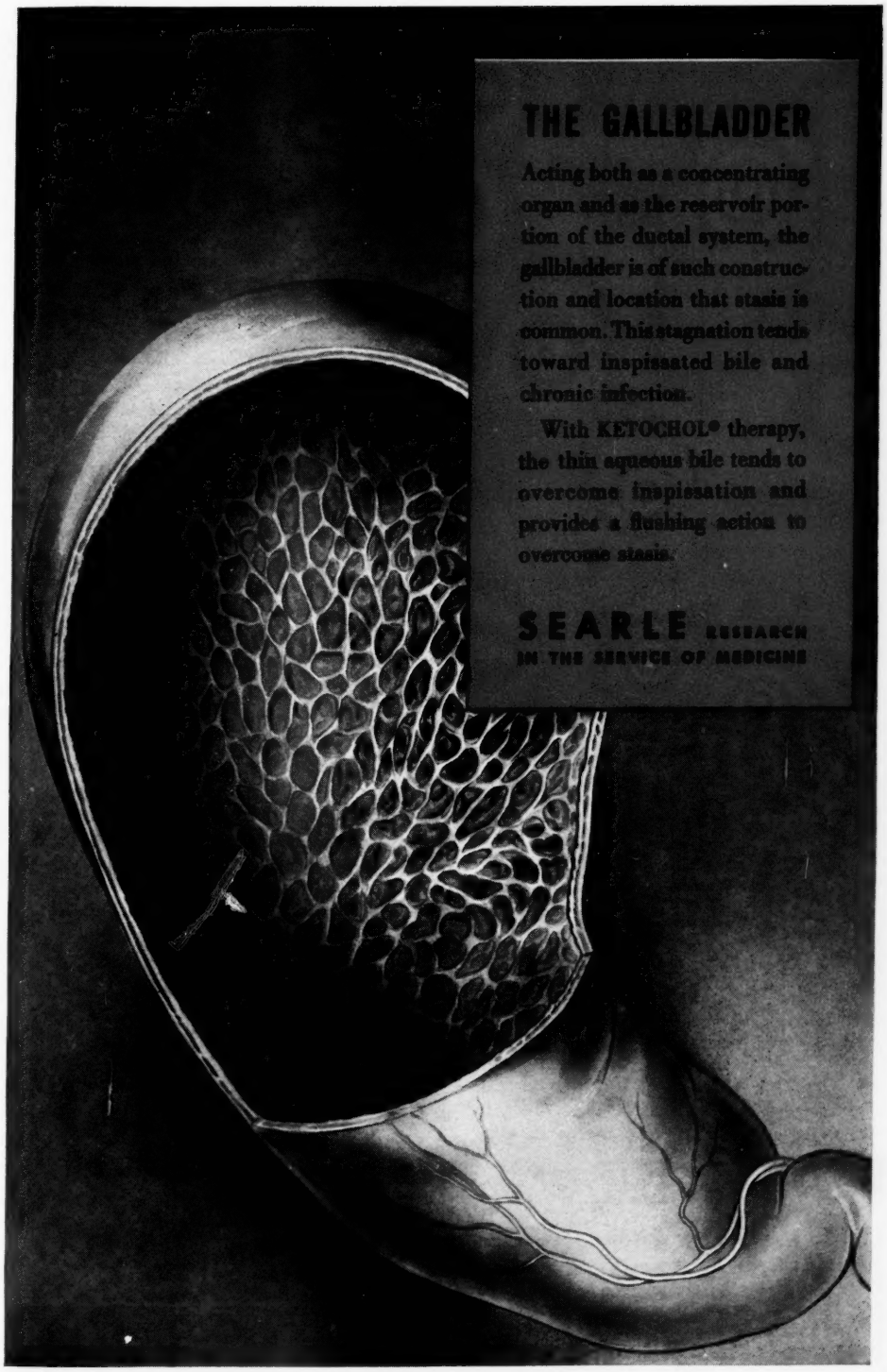
The advocates of Socialized Medicine stress the increased costs of medical care. Should the medical profession be a party to this libel by advocating indiscriminate inoculations or expensive procedures that are not absolutely necessary.

It is the duty of the medical practitioner to think what is best for his patient and not let hysteria guide him in his treatment of his patient.

Should the private physician discover in the course of his practice that there is an over-prevalence of certain communicable diseases such as influenza, it is his duty to report the same to the local Health Officer.

Sincerely yours,

JOSEPH SMITH, M.D.
Superintendent of Health
City of Providence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DISTRICT MEDICAL SOCIETY MEETINGS

KENT COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Kent County Medical Society was held at the residence of Doctor Jean Maynard, 41 Curson Street, West Warwick, R. I., on Tuesday, January 23rd, 1951.

The President Doctor Jean Maynard called the meeting to order at 9: 15 P. M.

The minutes of the December meeting recorded by Dr. Edmund Hackman were read and approved.

There was no unfinished business.

Doctor Collom was called upon to report on changes in the By-Laws of the Kent County Medical Hospital as proposed by the Board of Trustees.

Two major changes had been made by the latter body which were distasteful to the Medical Society. These changes concerned:

I. The wording in Section I, Article III entitled "Membership" and

II. The vesting of full power in the Board of Trustees to amend the By-Laws without due process of conference with the Medical Staff as stated in Article X entitled "Amendments."

After lengthy and lively discussion by nearly all members present, Dr. Abbate made motion:

That this group reject that portion of Article X which reads: — "Provided nevertheless that the trustees of the hospital have power, in their discretion, to amend or alter these rules and regulations, without complying with the foregoing procedure." —

This motion was enlarged upon by Dr. Joseph Wittig who felt that substantial reason for the rejection be given by adding to the motion: —

"— because, to our knowledge, no other hospital of this type has this clause in its By-Laws."

Motion was seconded by Doctors Whitman Merrill and Peter Koch and was carried unanimously when put to a vote.

A second motion was introduced by Dr. Collom who proposed: "that an alternative be given to Article X as follows: 'Any Amendment to the By-Laws may be initiated by either a member of the Board of Trustees or by a member of the active Medical Staff.

The Amendment shall be proposed at any regular Staff meeting and then immediately submitted in writing to the Secretary of the Staff who shall examine the proposed amendment and report at the next regular Staff meeting any overlapping or contradiction which might result from its adoption. A copy of the proposed Amendment shall be sent to each member of the Active Staff and the amendment shall be voted on at the following regular meeting.

It shall require a majority of the voting members present for its adoption and it shall become effective when approved by the Board of Trustees.'"

A third motion was made by Dr. W. Merrill:

"That Article III — Section I be made to read: Qualifications: Membership on the Medical Staff shall be open to active members in good standing of the Kent County Medical and Dental Societies and such other physicians as are selected and recommended by the Board of Trustees — *and* the Medical Staff."

This motion seconded by Dr. Hardy and so voted. Dr. Hardy then stated the necessity of discussing staff organization as time is short and there are some specialties not covered by the members in practice in Kent County.

A fourth motion was made by Dr. Russell Hager that:

"The Hospital Committee draw up a list of Specialists to serve on the active Staff and submit this list to the Society."

Dr. Young recommended that the motion specify further that:

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NEW PRACTITIONERS

(Editor's note: With this issue of the Journal we initiate the listing of announcements of physicians opening their office for the practice of medicine. New practitioners are invited to notify the Journal when they establish practice in Rhode Island for listing in our columns).

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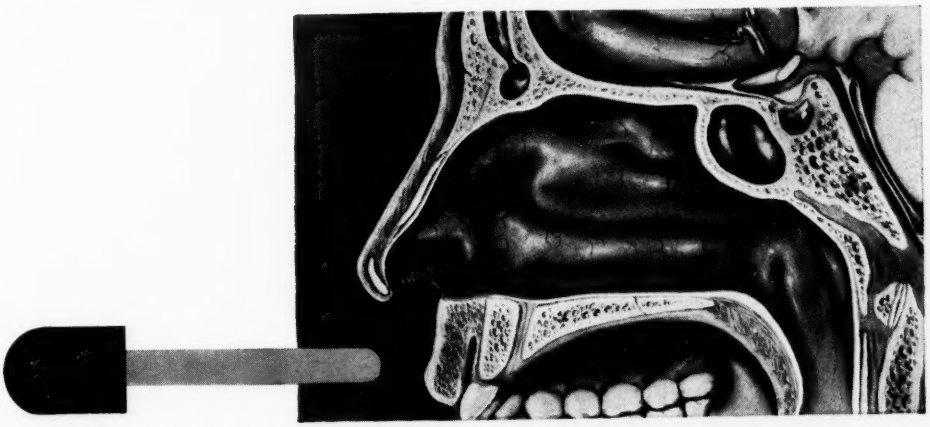

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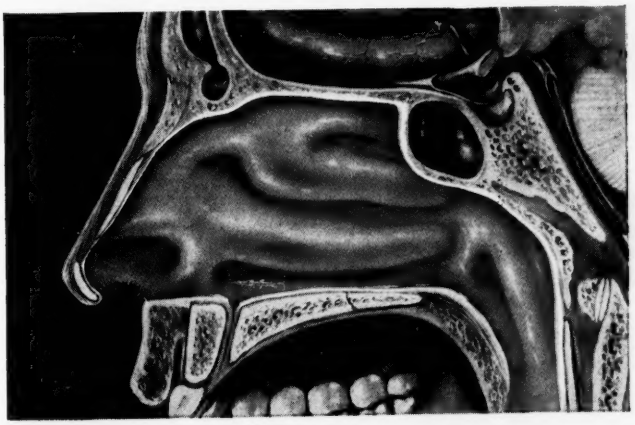

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KENT COUNTY MEDICAL SOCIETY

continued from page 146

"This list be made with the intent of filling in the gaps in the ranks of our own Society Members."

Motion was seconded and so voted.

The President entertained a motion to adjourn at 11:30 p. m.

Immediately after adjournment Dr. Abbate read the uniform fee schedule which the Rhode Island Medical Society has presented to Government Agencies and which we are expected to request for services rendered State-wards.

Office Visits: (1st and Subseq.)	$3.00
Home Visits: (1st and Subseq.)	5.00
Hospital Visits:	4.00
Night Calls:	7.00
Hospital Night Calls:	7.00

Respectfully submitted,

JEANNETTE E. VIDAL, M.D., *Secretary*

WOONSOCKET MEDICAL SOCIETY

A meeting of the Woonsocket District Medical Society was held at the Canadien Club on Tuesday, January 9, 1951. Dr. Alfred E. King called the meeting to order at 9:00 P. M.

The first order of business was a report of the committee on fees headed by Dr. Dupre. It was suggested that the society go on record as raising their fees to the standard as prescribed and approved by Government Agencies. The fee schedule as reported was: Office — $3, House Call, daytime — $5: Nite-time 7 P. M. to 7 A. M. — $7.00, Sundays and Holidays — $7.00. After considerable discussion a motion was made, seconded and passed to accept the fees as read.

The fee question then brought up a lively discussion of the advisability of publicity to the "raises of the fees." After considerable debate, the executive committee was delegated to draft the publicity release to the press. A motion was made to that effect, seconded and passed.

Dr. McKenna then took the floor relative to the payment of welfare fees by the Welfare Department. He requested that the society grant his committee power of negotiation with the Welfare Board. After some discussion, a motion was made, seconded and passed granting him his request.

Discussion of the Benevolent Aid to the Members of the Medical Society was taken up rather thoroughly by the body. It was decided that a motion be made, seconded and passed that the Woonsocket District Medical Society would take care of its own Members in regard to aid rather than working in conjunction with the State Medical Society.

The rest of the evening was taken up by Dr. Hannibal Hamlin, guest speaker, from Providence, whose topic was "Acute Injuries to the Head." His lecture was well presented and illustrated by X-ray stills and illustrations of cases.

The meeting was adjourned at 11:00 P. M. A buffet supper was served.

The attendance was 28.

EMIL A. KASKIW, M.D., *Secretary*

PROVIDENCE MEDICAL ASSOCIATION

A meeting of the Providence Medical Association, held jointly with the Providence District Dental Society, was held at the Rhode Island Medical Society Library on Monday, February 5, 1951. The meeting was called to order by Dr. Louis I. Kramer, President of the Providence Medical Association, at 8:30 P. M.

The secretary, Dr. Michael DiMaio, reported that the committee of Drs. Emery M. Porter and Alex M. Burgess had prepared and submitted the Association's tribute to the late Dr. Clinton Stevens Westcott.

As Dr. Westcott was a past president of the Association, Dr. Kramer requested that the tribute be read to the membership.

The secretary reported that members of the Association are invited to attend a series of lectures on the history of science which are being conducted by the department of history of Brown University.

continued on page 150

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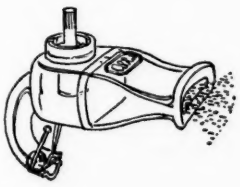

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1. Krasno, L. R., Grossman, M. I., and Ivy, A. C. (1949), The Inhalation of 1-(3',4'-Dihydroxyphenyl)-2-Isopropylaminoethanol (Norisodrine Sulfate Dust), J. Allergy, 20:111, March. 2. Krasno, L. R., Grossman, M., and Ivy, A. C. (1948), The Inhalation of Norisodrine Sulfate Dust, Science, 108:476, October 29.

PROVIDENCE MEDICAL ASSOCIATION

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Dr. Kramer announced that this day was National Children's Dental Health Day, and therefore the Association had planned the meeting jointly with the Providence District Dental Society. He called Dr. Robert Williams, President of the Providence District Dental Society, to the platform, and Dr. Williams introduced as the first guest speaker of the evening, Fred Shiere, D. D. S., of Boston, Assistant Professor of Oral Pediatrics, Tufts College Dental School, who spoke on "Problems in Child Dental Health."

Dr. Shiere emphasized that the science of pedodontics, which deals with the teeth and mouth conditions of children, is only a recent development and that preventive dentistry in childhood embraces pre- and post-natal development, nutrition, and general health of the mother. After his introductory statement about the science of pedodontics, Dr. Shiere confined his remarks mainly to the problem of dental caries, their cause and prevention.

The fermentation of carbohydrates with the production of acids, together with the liberation of enzymes from microorganisms, all play a role in the decalcification process in the production of dental caries.

In discussing the prevention of dental caries, he mentioned five important factors:

1. Good oral hygiene or tooth brushing. This is effective only immediately after eating because of the rapid fermentation of carbohydrates.
2. Proper nutrition. A well-balanced diet with a minimal amount of refined sugars is invariably associated with a low dental caries rate. An adequate intake of calcium, of course, is very important.
3. Fluorinization of the water supply and/or the topical application of fluorine are effective in reducing the incidence of dental caries.
4. Antibiotics. Penicillin, aureomycin, chloromycetin, and other antibiotics have proved effective in reducing the caries rate in experimental animals and in school children.
5. The dentist. Good operative dentistry plays an all important role in keeping the dental caries rate at a low level.

The second guest speaker, introduced by Dr. Kramer, was Fred W. Morse, Jr., M.D., of New York City, Regional Public Health Consultant, U. S. Public Health Service, who presented a "Review of Nutritional Observations in New England."

Dr. Morse reviewed the nutritional status of several communities in New England. A nutritional service survey was carried out in each community. This consisted of a physical examination, certain laboratory studies such as hemoglobin determinations, blood levels of certain vitamins and other elements, and estimation and evaluation of the dietary intake.

The survey showed that the fewest number of nutritional deficiencies were found in children of a private school. Next in the least number of nutritional deficiencies were found in a study of children in a Boston suburb. A study of 100 children in an Indian reservation in Maine showed that 50 per cent had signs of vitamin A deficiency as well as a high instance of vitamin C deficiency. On the other hand, a study of a number of school children in Brattleboro, Vermont showed that 8% were underweight and 8 to 30% had a vitamin A deficiency. A survey of a number of women in a New Haven Hospital Dispensary, showed a number of deficiencies as did women and girls in general regardless of the location or the conditions of the survey.

A question and answer session followed the presentation of the papers.

Meeting adjourned at 10:10 P. M.

Attendance was 110.

Collation was served.

Respectfully submitted,
MICHAEL DIMAIO, M.D., *Secretary*

PAWTUCKET MEDICAL ASSOCIATION

A regular monthly meeting of the Pawtucket Medical Association was held at noon in the Nurses' Auditorium, Memorial Hospital. The minutes of the last meeting as read by the secretary were accepted.

A communication from the Pawtucket and Central Falls YMCA requesting the Association to endorse their Health Week program which is to be held this spring, and to appoint a member to act as chairman was read. A motion was made by Dr. Henry Turner that the Association cooperate in this request was adopted.

Another request was read from the Federation of State, County, and City Employees asking our

continued on page 152

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Each OXYFAX* capsule contains:

Thyroid U.S.P.	10-15-20-30-60 mg.
Thiamine Mononitrate	15 mg.
Riboflavin	7.5 mg.
Niacinamide	100 mg.
Ascorbic Acid	100 mg.

OXYFAX is presented in five strengths of thyroid for individualized treatment.

SUPPLIED: Bottles of 100 and 500.

Oxytropic factors are indicated in atherosclerosis because of the impairment of oxygen exchange in this disorder[1,2] and the correlation of lowered thyroid activity with hypercholesterolemia.[3,4,5] It is significant that patients with thyrotoxicosis rarely develop atherosclerosis.[4] OXYFAX contains a synergistic combination of Thyroid U.S.P. and vitamins concerned in oxidative processes.

Brand of Lipotropic Factors

Each LIPOFAX* tablet contains:

Choline Bitartrate (Choline, 48 %)	350 mg.
Inositol	133 mg.
Pyridoxine Hydrochloride	1 mg.

SUPPLIED: Bottles of 100 and 1,000.

New clinical evidence of the role of the cholesterol-phospholipid serum ratio[6,7,8] provides a rational basis for the proved therapeutic value of lipotropic agents in atherosclerosis and coronary artery disease.[9] LIPOFAX supplies a potent combination of synergistic lipotropic factors that help correct the disturbed lipid balance.

*The words OXYFAX and LIPOFAX are exclusive trademarks of Mezger Pharmacal Co., Inc.

Combined Oxytropic-Lipotropic Therapy Improves the Prognosis . . .

Write for Comprehensive Brochure and Suggested Dietary Guide

REFERENCES: 1. Hueper, W. C.: M. Clin. North America 33: 773 (May) 1949. 2. Editorial: J.A.M.A. 141: 392 (Oct. 8) 1949. 3. Stamler, J.; et al.: Circulation 2: 523 (Oct.) 1950. 4. Morrison, L. M., and Gonzales, W. F.: Geriatrics 5: 188 (July-Aug.) 1950. 5. Editorial: Ann. Int. Med. 33: 250 (July) 1950. 6. Morrison, L. M.; et al.: Proc. Am. Soc. Study of Arteriosclerosis, Circulation 2: 472 (Sept.) 1950. 7. Gertler, M. M.; et al.: Circulation 2: 517 (Oct.) 1950. 8. Editorial: Lancet 2: 916 (Dec. 30) 1950. 9. Morrison, L. M., and Gonzales, W. F.: Am. Heart J. 39: 729 (May) 1950.

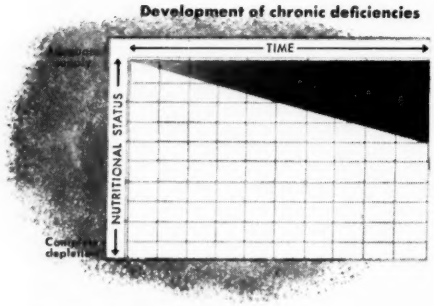
MEZGER PHARMACAL CO., INC.

50 ANDOVER ROAD, ROSLYN HEIGHTS, N. Y.

chronic
vitamin deficiencies

When vitamin intake is just below the adequate, deficiencies develop slowly. As time goes on lesions appear. They are insidious in onset and slow in regression, even under intensive therapy. Many chronic lesions progress uneventfully. The patient accepts his ill-health as normal.

Development of chronic deficiencies



Treatment of chronic deficiencies

Chronic deficiencies require prolonged therapy. At first treatment should be intensive. A much longer period of complete but less intensive treatment should follow. For a year after apparent recovery the patient should be given fully protective amounts of the essential nutrients.

THERAGRAN supplies all of the vitamins indicated in mixed vitamin therapy in clinically proved, truly therapeutic dosages.

Each Theragran Capsule contains:	
Vitamin A	25,000 U.S.P. Units
Vitamin D	1,000 U.S.P. Units
Thiamine HCl	10 mg.
Riboflavin	5 mg.
Niacinamide	150 mg.
Ascorbic Acid	150 mg.

Bottles of 30, 100 and 1000

When the deficiency is chronic specify Theragran and correct the patient's diet

THERAGRAN
THERAPEUTIC FORMULA VITAMIN CAPSULES SQUIBB

SQUIBB "THERAGRAN"—T. M., E. R. SQUIBB & SONS

PAWTUCKET MEDICAL ASSOCIATION

continued from page 150

Association to purchase tickets for their ball on February 14. Dr. Mara's motion to put this temporarily on file was carried.

Dr. Healey introduced a request from the high schools for a physician to speak on their vocational programs. Dr. Fox's motion for appointment of a member by the chair was carried.

Dr. Senseman, Treasurer, recommended that the present dues of $15 be reduced as the treasury now has ample funds. A motion by Dr. Mara was carried to defer new assessments until after March when the plans of the incoming officers would determine the amount of dues needed.

A motion was made by Dr. Fox that the President appoint a committee, and act as chairman, to formulate a plan for aid to members in the services, and to review the by-laws in this respect. This was approved.

Dr. Henry Turner reported on the discussions at the House of Delegates meeting regarding the care of indigents, and emergency and night calls. He pointed out that Pawtucket plans in this direction are not satisfactory. He associated with this the poor attendance and participation at meetings. He made a stirring plea for efforts to correct these deficiencies. Dr. Mara suggested probationary memberships in our Association for four or five years with changes in the by-laws in this direction. Finally Dr. Turner made a motion that a committee of five be appointed by the chair to study the problems of (1) emergency care of the public, and (2) membership and attendance, with a report, if feasible, at the February meeting and recommendations for the improvement. This was carried.

The meeting adjourned at 1 P. M.

Attandance 18.

Respectfully submitted,
HRAD ZOLMIAN, M.D., *Secretary*

CARE OF ATOM BOMB CASUALTIES

DON'TS

DO NOT impede circulation by pressure dressings or tourniquets

DO NOT use sulfa drugs

DO NOT give morphine sc in shock

DO

Keep an adequate record of treatment attached to the patient

A. *RADIATION SICKNESS*

1. *Initial Treatment of Radiation Sickness* is iv fluid replacement when indicated.

2. Follow-up Treatment will consist in the use of
   (1) antibiotics to counteract infection
   (2) whole blood to offset anemia, leukopenia and hemorrhage
   (3) intravenous protein and glucose to supply food (when indicated)
   (4) Vit. B and C groups for avitaminosis
   (This follow-up treatment to be given in general hospitals and NOT emergency evacuation hospitals)

B. *TRAUMATIC INJURIES*

1. First Aid in evacuation hospitals. Definitive treatment in general hospitals.

C. *MANAGEMENT*

1. *Morphine*
   (Patients in shock will not absorb morphine given subcutaneously — give ⅙ grain intravenously and repeat as necessary)
2. *Emergency Dressing*
   Fine mesh gauze and petrolatum OR cellophane and gauze
   Covered by sheet wadding or mechanics waste
   Bandage for moderate pressure
3. *Prevent or Correct Shock*
   (1) *Prevent Shock*
   Fluids by mouth (try to reach 5 quarts 24 hours)
   All water to be salted (Use enteric coated salt tablets or
   R/ 1 level teaspoonful table salt
   1 level teaspoonful sodium citrate
   1 quart of water
   (2) *Correct Shock*
   Plasma or gelatin (Knox iv) intravenously (usually not over 3 liters in 24 hours)
   Watch Urine (MAINTAIN RECORD)
   Below 50 cc per hr increase fluids
   Over 200 cc per hr decrease fluids
   OR
   Specific gravity above 1.020 increase fluids
   Specific gravity below 1.020 decrease fluids
4. *Prevent or Control Infection*
   Antibiotics (DO NOT use sulfa drugs!)
   (Evacuate all seriously burned patients to general hospitals)

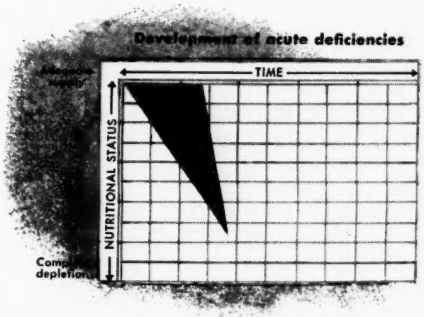
DON'TS (Continued)

DO NOT use so called stimulants (coramine etc.)

DO NOT use heat or more than two blankets (Room temp. 75°, adequate fresh air)

acute
vitamin deficiencies

A sudden drop from adequate to grossly inadequate vitamin intake results in fast tissue depletion and functional changes. Ordinarily, physical lesions do not appear. If tissue depletion is rapid enough, death may ensue with slight or no morphologic variation.



Treatment of acute deficiencies

Fully therapeutic dosages of all the vitamins indicated in mixed vitamin therapy should be given. Under intensive therapy recovery from acute vitamin deficiencies usually is made in a comparatively short time.

THERAGRAN supplies clinically proved, truly therapeutic dosages of all the vitamins indicated in mixed vitamin therapy.

Each Theragran Capsule contains:	
Vitamin A	25,000 U.S.P. Units
Vitamin D	1,000 U.S.P. Units
Thiamine HCl	10 mg.
Riboflavin	5 mg.
Niacinamide	150 mg.
Ascorbic Acid	150 mg.

Bottles of 30, 100 and 1000

When the deficiency is acute specify Theragran and correct the patient's diet

THERAGRAN

THERAPEUTIC FORMULA VITAMIN CAPSULES SQUIBB

SQUIBB

Report of the Delegate to the A.M.A. Interim Session, Cleveland, Ohio

December 5th to 8th, 1950

THE GENERAL PRACTICE session of the A. M. A. was held at Cleveland, Ohio, December 5th to 8th, 1950.

195 out of 198 Delegates attended and participated in the deliberations of the House of Delegates.

The General Practitioners' award was conferred on Dr. Dean S. Luce of Canton, Massachusetts. He was also invited to participate at our midwinter meeting in Woonsocket on December 13th.

The Board of Trustees of the A. M. A. announced that $500,000.00 would be appropriated from the National Education Fund to help medical schools in need of financial support. It is hoped that other sources of business, industry and individuals will contribute to the fund.

Your Delegate introduced a proposal for a revision of the By-Laws to enable the smaller states to have a minimum of two Delegates representing them in the A. M. A. House of Delegates. The proposal was thoroughly discussed at a Reference Committee hearing and had much support. The Reference Committee did not adopt the resolution but referred it to the interim Committee on Constitution and By-Laws for study and report at the next Annual Meeting in June, 1951. They further suggested that some plan be worked out whereby an Alternate could be seated in the event the official Delegate (of a state having only one Delegate) had to leave because of illness or other reasons before the end of the session.

The problem of hospital standardization came in for a good deal of discussion and, although the House approved the present negotiations between the Board of Trustees and the American Hospital Association looking toward a settlement of the problem, there were many Delegates who were not pleased with the present state of affairs and there still may be some revision in the proposed resolutions at the next session.

Some question as to the desirability of continuing the interim session was raised and, although the sessions are poorly attended and lose money, the House accepted the Reference Committee report to continue them.

The American Academy of General Practice has of late years conducted a General Practice session which has attracted a large number of general practitioners and exhibitors.

The dues for the year 1951 was set at $25.00 and a subscription to the JOURNAL of the A. M. A. is included in the membership dues. Fellowship dues are an additional $5.00 and the Fellow may elect to substitute any of the other A. M. A. publications in place of the JOURNAL if he so desires.

The Council on Emergency Medical Service is of the opinion that the most important problem in Blood Program at this time is the procurement of large amounts of blood and plasma at strategic points in the United States and its possessions. It recommended that the Board of Trustees urge states to set up a Committee on Blood Banks and that these committees be advised of the need of full cooperation with all other groups and that they proceed to develop a blood program at once.

There were several changes in the Constitution and By-Laws which were adopted. They were technical and administrative in nature and they may be examined in detail on pages 1477 of the JOURNAL of the American Medical Association, Volume 144, No. 17, December 23, 1950.

Again the controversial subject of medical and hospital care for the veteran with non-service disabilities was deliberated on the floor of the House as well as before Reference Committee. The House has been most patient with proponents of these resolutions but each time has refused to accept the proposal, and wisely so. It is now to be sincerely hoped that the action taken at this session will close the matter. The Committee recommended and the House adopted the report which authorized the Board of Trustees to permit the Committee on Legislative affairs to offer its services to Congress for

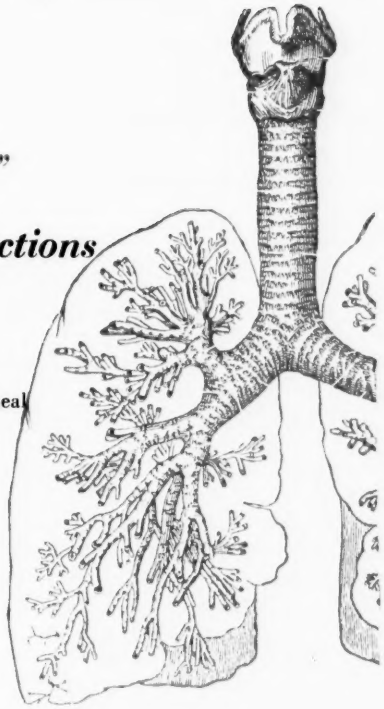
1. The best possible care of all veterans with service connected disabilities in Veterans Administration facilities.
2. The best possible care for veterans with non-service connected disabilities who need financial support.
3. Veterans with non-service connected disabilities who are able to do so should provide their own care.

At a time when the medical profession is under considerable examination by the general public and proponents of socialized medicine, it is heartening

continued on page 157

"prompt" response
"excellent" response
"...extremely effective"

in acute upper respiratory infections



Promptness of response to therapy is essential in these infections to accelerate the patient's recovery and prevent the spreading of infection. Acute laryngotracheal bronchitis (H. influenzae)[1], acute follicular tonsillitis (Str. pyogenes)[2], and streptococcic pharyngitis[3,4] are among the conditions in which uniformly favorable responses described as "excellent" and "prompt" have been obtained with this new antibiotic agent. In pharyngitis particularly, it has been noted that Terramycin "... given orally appears to be extremely effective."[5]

CRYSTALLINE

Terramycin

HYDROCHLORIDE

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

The growing clinical literature continues to stress:

1. *The broad-spectrum activity of Terramycin* against organisms of the bacterial and rickettsial as well as several protozoan groups.
2. *The promptness of response to Terramycin* in acute and chronic conditions affecting a wide range of systems, organs and tissues.

Supplied:
250 mg. capsules, bottles of 16 and 100;
100 mg. capsules, bottles of 25 and 100;
50 mg. capsules, bottles of 25 and 100.

1. Herrell, W. E.; Heilman, F. R., and Wellman, W. E.: Ann. New York Acad. Sc. 53:448 (Sept. 15) 1950.
2. Herrell, W. E.; Heilman, F. R.; Wellman, W. E., and Bartholomew, L. A.: Proc. Staff Meet. Mayo Clin. 25:183 (Apr. 12) 1950.
3. Knight, V.: New York State M. J. 50:2173 (Sept. 15) 1950.
4. Dowling, H. F.; Lepper, M. H.; Caldwell, E. R., and Spies, H. W.: Ann. New York Acad. Sc. 53:433 (Sept. 15) 1950.
5. Schenck, H. P.: M. Clin. North America 34:1621 (Nov.) 1950.

Antibiotic Division **Pfizer** CHAS. PFIZER & CO., INC., *Brooklyn 6, N.Y.*

1941 A Decade of Progress in Antibiotic Therapy *1951*

COMMITTEE ON TRAUMA

AMERICAN COLLEGE OF SURGEONS

(Prepared by the Subcommittee on Rehabilitation)

"We are wasting a tremendous amount of money and manpower by treating a broken bone and letting a well man get sick physically and mentally while under our care. Then after the damage is done, we spend months, years, or a lifetime trying to bring him back to normal."

Dr. Robert H. Kennedy, Chairman of the American College of Surgeons' Committee on Trauma, said this in May, 1941 and now in 1949 can we honestly say that this statement is no longer true?

"Rehabilitation" — "Physical Restoration" — "Restorative Therapy" — "Third Phase of Medicine?"

The *name* is relatively immaterial but *to be conscious of its importance* in speeding recovery and to avail oneself of the facilities and methods available towards this end, *is* the important thing.

Great strides have been made in the techniques of the definitive treatment of trauma in the early stage but can we say the same holds true during the convalescent stage?

World War II demonstrated conclusively that when only a portion of a man was damaged, serious deconditioning of the *whole* patient *could* be avoided by the early institution of preventive measures. Such measures used were nothing new or difficult. It was merely that already well-known, simple principles were systematically begun and carried out on the ward as soon as medically advisable and continued through convalescence to speed recovery. It does not seem reasonable nor good medical practice to discontinue such procedures now that the acute battle casualties are being replaced by the continued occurrence of the injuries in industry and other daily accidents in our civilian life.

Rehabilitation does not require elaborate equipment in a large clinic. It does not mean hours of passive participation under a lamp or diathermy or days of non-productive, monotonous exercises. True rehabilitation begins at the bedside or in the clinic or office where the surgeon first directs his treatment toward the early functional restoration of the injured part. Sometimes it may mean the reassurance that an injury or illness is not serious and no special treatment is required. The surgeon must counsel, advise and instruct the patient, and both think and speak in terms of the patient's personal problems if rehabilitation is to have a firm foundation.

For example, often painstaking instruction is necessary by the surgeon in the proper use of cane or crutches. Most beginnings with each individual patient will be on a small scale and much of the restoration will be done by the patient in his own everyday environment. Only the more serious cases will require special clinics or centers for their restoration.

The surgeon in charge cannot be absolved from the responsibility of doing all he personally can to prevent deconditioning and commence the work of

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restoration in spite of the possible lack of formal, ancillary restorative services at his hospital. Much can be done to get the patient in good condition and certain deformities, contractures, limitations of motion, atrophies of disuse, restricted functions, disturbed mental attitudes and warped outlook on life *can* be avoided or greatly reduced in most cases if the surgeon will inspire his assistants, residents or interns with the proper thinking and consciousness of their obligation to the patient.

Where the ancillary services of physical and occupational therapy *are* available, they are invaluable aids to attaining physical restoration if optimal use is made of them. To assure the best results they must be started early. Depending on the cases, restorative therapy may be started on the ward, in the clinic or office, always, of course, under the guidance and direction of the surgeon whose responsibility it is to be able to give that guidance and direction.

Excellent work is being done by the limited number of rehabilitation facilities available at present and by earlier referral they could be helped more in returning the patient to employment even sooner. Delay between the time of injury and the commencing of restorative therapy frequently may be the main factor that will determine whether success or failure in restoring function is to be the result. When every physician caring for a traumatic case is fully conscious of the necessity to commence preventive and restorative therapy at the earliest possible moment after injury, the time lost by the patient from remunerative employment can be reduced.

REPORT OF DELEGATE TO A.M.A.

concluded from page 154

to note that the House had one hundred per cent attendance in all sessions and that all but three Delegates from the United States possessions were in attendance at the meeting. The Reference Committees were well attended and some had to have extra sessions. The material submitted for debate was thoroughly debated and discussed before reports were written and it is interesting to note that the Reference Committees so correctly gave the sentiment of those appearing before it that there were no instances of Reference Committee reports being overturned on the floor of the House.

Respectfully submitted,

CHARLES L. FARRELL, M.D.

It fills the need . . .

FOR A SOFT CURD MILK

Proper homogenization produces a very low-tension curd and at no sacrifice of the milk's normal calcium and phosphorus.

- **For a milk acceptable to finnicky digestive systems . . .**
- **For a key food for expectant and nursing mothers . . .**
- **For the most important item in infant feeding . . .**
- **For a war-time replacement food as well as a basic food . . .**

PRESCRIBE

GRADE A HOMOGENIZED MILK

Produced by

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Established 1881

102 Summit Street, East Providence, R. I., Telephone East Providence 2091

guarding against megaloblastic anemia

a new product

Inadequate vitamin C in infant feeding often leads not only to scurvy but also to megaloblastic anemia.[1] BREMIL—newest product of Borden research—guards against these grave nutritional complications by providing three times the recommended daily allowance[2] for vitamin C in the reliquefied quart.

Appreciation of the importance of infantile megaloblastic anemia begins with the classic description of the syndrome by Zuelzer and Ogden.[3] May, et al., observe that megaloblastic anemia "has been reported frequently as a complication of scurvy."[1] They also report concerning their own work: "When vitamin C was provided adequately, the diets tested did not lead to megaloblastic anemia."[1]

Careless formula preparation or simply failure to give the required vitamin C when prescribed often explains the inadequacy in vitamin C intake. Physicians will therefore appreciate particularly the fact that BREMIL provides more than ample ascorbic acid. And, of course, BREMIL meets similar requirements for vitamins A, B, and D, riboflavin and niacin.

moreover . . . an adequate provision of vitamin C is not the only attribute that makes BREMIL new and unique

BREMIL is a completely modified milk in which the calcium-phosphorus ratio (1½:1) is adjusted to the pattern of human milk, thus helping to prevent hypertonicity, hyperirritability and other tetanic symptoms in infants.[4,5] BREMIL has the fatty acid and amino acid patterns of human milk . . . the same carbohydrate (lactose) . . . more iron . . . a soft, flocculent curd of small particle size comparable to human milk . . . complete solubility.

BREMIL can be mixed for a single feeding or a 24-hour period. Formula preparation is as rapid as with a liquid product. Moreover, BREMIL does not settle out on standing. Standard dilution is 1 level tablespoonful and 2 fl. oz. water, although BREMIL can be either concentrated or diluted. Each level tablespoonful BREMIL powder supplies 44 calories.

Complete information and a trial supply may be obtained upon request.

BREMIL is available in drugstores in 1 lb. cans.

1. May, C. D., et al.: *Am. J. Dis. Child. 80:191, 1950.*
2. Recommended Daily Dietary Allowances, Rev. 1948, Food and Nutrition Board, National Research Council.
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flexible, palatable, easy to prepare **Bremil®** *powdered infant food*

Prescription Products Division

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ANNUAL REPORTS — 1950

THE PROVIDENCE MEDICAL ASSOCIATION

ANNUAL REPORT OF THE SECRETARY

The Association suffered a great loss during the year with the death of its elected President, Dr. U. E. Zambarano, who had been ill for several months.

Under the direction of Dr. Frank W. Dimmitt, who succeeded to the presidency, the Association carried forward its many programs with success. To name a few major projects the rapid development of the Medical Bureau, the formation of a Disaster Committee, the offering of a group health and accident policy for the membership, and the successful annual dinner and golf tournament may be cited.

During the year the Association conducted seven scientific meetings with an average attendance of 92 members. The December meeting was omitted in order that the Association might cooperate completely with the Rhode Island Medical Society in its midwinter session held at Woonsocket.

The programs presented at the Association meetings in 1950 were as follows:

January 9 — Presidential Address, George W. Waterman, M.D. "The Hoover Report," Mr. Nord Kitchen, Providence Junior Chamber of Commerce. "Physicians Service," Joseph C. O'Connell, M.D., President, Rhode Island Medical Society Physicians Service.

February 6 — "Legal Hazards of the Practice of Medicine," S. Everett Wilkins, Member, Firm of Hinckley, Allen, Tillinghast and Wheeler; Counsel, Aetna Casualty and Surety Company. "The High Calory Diet in the Treatment of Diarrhea in Infants," Edward Scott O'Keefe, M.D., Pediatrician, Union Hospital, Lynn, Mass.; Consultant Pediatrician J. B. Thomas Hospital, Peabody; Formerly Pediatrician, Massachusetts General and Carney Hospitals; Formerly Instructor in Pediatrics at Harvard Medical School.

March 6 — "Cardiovascular Syphilis," Clifton B. Leech, M.D., Associate in Cardiology, Rhode Island Hospital. "The Present Status of Treatment in Rheumatoid Arthritis," Marion Ropes, M.D., Associate Physician, Massachusetts General Hospital; Assistant Professor of Medicine, Harvard Medical School.

April 3 — "Some New Aspects in Radiation Therapy With Special Considerations on the Practical Use of Infrared and Ultraviolet in Clinical Medicine," Milos J. Lota, M.D., Jaffenreffer Fellow in Medical Science, Brown University and Rhode Island Hospital; Formerly Professor of Physical Medicine at Charles University, Prague, Czechoslovakia. "Management of Common Skin Diseases," John L. Fromer, M.D., Member of Staff, Allergy and Dermatology Service, The Lahey Clinic, Boston.

May 1 — "Problems of the General Practitioner, and Their Solutions," Charles E. Millard, M.D., President Rhode Island Academy of General Practice. "Vascular Lesions of the Brain, and Their Surgical Treatment," Hannibal Hamlin, M.D., Assistant Surgeon, Department of Neurosurgery, Rhode Island Hospital.

October 2 — "The Circulatory Manifestations of Obstruction of the Superior Vena Cava in a Patient with Portal Hypertension," David S. Howell, M.D., Formerly of Rhode Island Hospital; Presently on the Staff of Philadelphia General Hospital. "Surgery in Heart Disease," Robert E. Gross, M.D. of Boston, William E. Ladd Professor of Surgery, Harvard Medical School, and Surgeon-in-Chief, Children's Medical Center.

November 6—"Tetanus," C. J. Bellavance, M.D., Resident of Rhode Island Hospital; Richard F. Mulroy, M.D., Assistant Resident Department of Orthopedics at Rhode Island Hospital. "Social Medicine in Great Britain," Mr. Elisha C. Mowry, Attorney, President of Rhode Island Branch, English-Speaking Union. "Infectious Hepatitis Complicating Pregnancy," Leonard Sutton, M.D., Resident of Rhode Island Hospital; Elihu S. Wing, Jr., M.D., Formerly Resident Rhode Island Hospital, Presently a Resident at Johns Hopkins Hospital.

The Executive Committee held six meetings in 1950 at which the business affairs of the Association were carried forward. Applications for membership were viewed, and twenty-two physicians were recommended to the Association for election to membership as active members.

During the year one associate member resigned, and one active member transferred his membership outside the State; two members returned to Providence to practice medicine and they were re-instated in membership. One member was transferred from active to associate membership. The total members at the end of the year were 605.

The following members died during 1950:

Vincent Bianchini, M.D. (October 8, 1950)
James H. Crowley, M.D. (April 3, 1950)
Robert L. Farrell, M.D. (October 3, 1950)
William H. Hodgson, M.D. (June 4, 1950)
Jacob S. Kelley, M.D. (March 18, 1950)
George S. Mathews, M.D. (December 1, 1950)
Harry C. Messinger, M.D. (August 2, 1950)
Alan E. O'Donnell, M.D. (March 3, 1950)
George F. White, M.D. (September 23, 1950)
Pearl Williams, M.D. (March 13, 1950)
Ubaldo Zambarano, M.D. (May 30, 1950)

With this report your Secretary concludes four years of service in this office. They have been most enjoyable years of participation in the affairs of the Association, and to all those members who have given generously of their time and energies to assist me in carrying out my duties as Secretary I extend my personal thanks.

DANIEL V. TROPPOLI, M.D., *Secretary*

ANNUAL REPORT OF TREASURER

RECEIPTS:		
Cash balance on hand, January 1, 1950		$ 333.29
Dues paid in 1950	$7,527.50	
Annual dinner	725.00	
Dividends from investments	35.00	
Medical Bureau Loan repaid	604.36	
R. I. Medical Society, for advertising in Educational Campaign	50.00	
Total Receipts, 1950		8,941.86
		$9,275.15

* * *

EXPENSES:		
Annual Dinner	$ 674.29	
Collations	385.00	
Committees	165.00	
Donation, R. I. Medical Society	2,313.50	
Educational Campaign	194.76	
Executive Office	522.60	
Journals for Library	659.76	
Library (night attendant)	312.00	

continued on next page

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ANNUAL REPORTS

continued from preceding page

Meetings	119.47	
Miscellaneous	111.54	
Office supplies	39.93	
Printing & Postage	422.31	
Salaries	1,776.40	
Taxes	392.79	
Telephone	258.16	
Refund, Rhode Island Medical Society	40.00	
		$8,387.51
Cash balance, January 1, 1951		$ 887.64
Investments (U. S. Treasury bonds)		2,740.00
Total assets, January 1, 1951		$3,627.64

J. M. BEARDSLEY, M.D., *Treasurer*

MEDICAL BUREAU OF THE PROVIDENCE MEDICAL ASSOCIATION

FINANCIAL STATEMENT

Fiscal Year — September 1, 1949 . . . August 30, 1950

Receipts		$23,503.86
Expenses:		
Construction	$ 1,226.59	
Equipment	383.42	
Office supplies	81.43	
Postage and Printing	881.75	
Repairs	6.45	
Miscellaneous	226.52	
Salaries (take home)	13,903.91	
Telephone	4,109.10	
Taxes (wages and soc. security)	1,984.35	
		$22,803.52
Balance		700.34

J. M. BEARDSLEY, M.D., *Treasurer*

DISASTER COMMITTEE

Experience throughout the United States has shown again and again the need of plans for medical care in case of disaster. Disasters vary greatly in the type of injuries sustained and the number of casualties. For instance, in the Coconut Grove and Hartford Circus fires, burns were the predominating problem, while at the Galveston, Texas disaster, explosions of the ammunition ships produced an enormous number of fractures and lacerations in proportion to the burns. The same is true of railroad accidents.

Catastrophes also vary greatly in the amount of damage done to communications. In Galveston, bridges and roads were torn up making it almost impossible to evacuate the injured and transport medical supplies and personnel.

The committee has met and discussed these problems and are now formulating definite plans. These plans are broad enough so that they can be integrated with the State Plan and National Defense Plan. Several steps have been taken to have a well organized plan.

1. Questionnaires have been sent to physicians so that we may know if a physician has already been assigned to some hospital or Red Cross Emergency Plan.

2. Your chairman has met with the State Committee and various other Defense Committees.

3. Our executive secretary, Mr. Farrell, has communicated with many states and cities to get their ideas and methods of planning.

4. Plans are being made to have physicians living in various districts to attend the catastrophe in their section and start First Aid treatment. This in no way supersedes the Red Cross and their excellent work but is only to supplement them. We suggest all physicians have first aid supplies including morphine, syringes, needles, bandages and gauze as a personal preparedness.

5. We recommend extensive training of civilians and nurses in First Aid to assist the physician.

6. The committee has urged each hospital to set up a disaster plan and stock pile emergency treatment bags.

7. Your chairman has talked to various members of hospital catastrophe committees and has sent out mimeographed copies of the R. I. Hospital plan in order that they may formulate their own plan and their individual assignments.

8. A plan is in the making to have the Medical Exchange notify doctors when and where they are needed. The Providence Police will cooperate in case communication lines are broken.

Respectfully submitted,

J. MERRILL GIBSON, M.D., *Chairman*
WILLIAM A. HORAN, M.D.
L. E. REIK, M.D.
EDWARD I. SELTZER, M.D.
HUGH J. HALL, M.D.
HENRY B. MOOR, M.D.
FREDERICK J. BURNS, M.D.

PUBLIC RELATIONS

Since the members of the Public Relations Committee of the Providence Medical Association are all members of the same committee of the state society, the committee has limited its work to active participation in the program of the state society's committee on public relations, feeling that that would avoid duplication of effort and

continued on page 164

THE ANTIBIOTIC OF CHOICE *In Gram-Positive and Gonococcic Infections:*

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PROVIDENCE MEDICAL ASSOCIATION

Annual Reports

continued from page 162

cost. The state society's committee on public relation has carried on an active program following the lines set down by the National Education Program of the American Medical Association. A good part of this work has consisted of personal appearances before civic and other groups discussing the current issue of socialized medicine.

This committee would like to point out the importance of payment of individual members' dues to the American Medical Association. The twenty-five-dollar annual amount is actually much less than union members pay to their own organizations. In addition to that, the annual dues now include a subscription to the Journal of the American Medical Association, This money is not being used as a fund for lobbying, as has so often been said in the public press. It is being used to carry on the national education program of the A. M. A. This is not any longer a negative, critical program, but a constructive one with concrete and specific purposes. The A. M. A. recently spent a million dollars in publicity work which consisted of articles in newspapers throughout the country, in a great many magazines, and over the radio. The program was eminently successful as witnessed by the fact that private industry spent two million dollars for tie-in advertising, twice the amount that the A. M. A. spent. In addition, the A. M. A. has recently set aside half a million dollars to be given to medical schools in this country to aid them in their programs. This, of course, is a definite attempt to forestall Federal aid to medical education, a situation which would in time lead to but one thing — Federal control of the medical schools.

It would be quite fool-hardy for any one individual to expect that the public relations committees throughout the country can carry on the entire program for all doctors. If one would but stop and think, each individual practitioner would realize that public relations begins right at home in his own office. He himself is his best public relations man. He can do more to create more good-will by the way he treats his patients himself than any other man can do for him. Likewise, his secretary. The voice which answers the telephone when a patient calls is a very important one. First impressions are foremost and lasting. This matter deserves your consideration and thought, and the committee urges you very strongly to be most careful in your deportment with your fellow men. We are definitely on the spot and this is the time when each and every one of us has to be most careful.

Respectfully submitted,

MORRIS BOTVIN, M.D., *Chairman*
CHARLES ASHWORTH, M.D.
CLIFTON LEECH, M.D.

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READING ROOM COMMITTEE

The Library was open 101 evenings from January 3 through December 26. The total number of visitors was 427. Of these 122 were members of the association. The remainder were students, teachers, nurses, dentists, etc. Evening hours seem to be becoming more popular as there were over 100 more visits than in 1949.

The association has paid for the binding of 58 volumes of medical journals and there are 42 volumes at the bindery at the present time.

The Association subscribes to 35 journals.

Respectfully submitted,

RUSSELL R. HUNT, M.D., *Chairman*
F. CHARLES HANSON, M.D.
JACOB GREENSTEIN, M.D.

COMMITTEE ON PRE-SCHOOL EXAMINATIONS

The Committee on Pre-School examinations did not meet during the year 1950 due to the fact that the announcement of the make-up of the Committee appeared too late for definite action of said committee, which must of necessity take place in the Spring months of the year. Attention is called to the year 1949 when it was stated that it was the

continued on page 166

REPORT OF THE MILK COMMISSION OF THE PROVIDENCE MEDICAL ASSOCIATION, 1950

CERTIFIED MILK in Providence during 1950 was obtained from the following farms: Cherry Hill Farm, North Beverly, Mass.; Fairoaks Farm, Lincoln, R. I.; Hampshire Hills Farm, Wilton, N. H.; Walker-Gordon Farm, Charles River, Mass.

Through the courtesy and co-operation of the Boston Commission we have accepted their certification of two farms from Massachusetts and one from New Hampshire.

Bacteriological and chemical examinations of certified milk are made in the laboratories of Brown University under the supervision of Professor Charles Stuart.

All of the herds are under State and Federal supervision and are free from Tuberculosis and Brucella abortus infections.

The legal standard for Pasteurized Certified milk in Providence is 500 colonies per c.c., and the actual count in all samples examined by your Commission the past year has been 14 colonies per cc. The count on raw certified milk the past year has been 6202 per c.c. while the legal limit in Providence is 10,000 colonies per cc. The credit for this splendid record belongs to the producers of this quality milk.

The American Association of Medical Milk Commissions in their Methods and Standards for the Production of Certified Milk, require that each producer shall make or have made, once per month, a titration of Brucella agglutinins in the whey of the milk, whether the milk is raw or pasteurized.

Certified milk shall have a coliform colony count of not more than 10 per ml. before pasteurization and must be less than 1 per ml. in route samples as delivered to consumers. During the past year practically all of the samples examined in our laboratory have conformed to this regulation.

During the past year considerable interest in milk has been manifested by various groups in the State. Many people still ask how it is possible to produce such a fine milk with low bacterial counts and practically free from Coliform organisms. The presence of these organisms in unpasteurized milk usually indicates unclean milking, contaminated utensils or improper handling of milk. Rarely they may come from infected udders. Their presence in pasteurized milk indicates improper pasteurization or contamination of the milk after pasteurization. Properly pasteurized milk should contain no organisms of the coli-areogenes group.

The Commission is indebted to Professor Stuart of Brown University for his continued cooperation in supervising our laboratory work at Brown University.

The Commission again wishes to thank Dr. Edwin Knights of the Health Department for his helpful suggestions and interest in the production of this high grade product.

HAROLD G. CALDER, M.D., *Chairman*
REUBEN C. BATES, M.D., *Secretary*
D. WM. BELL, M.D. JOHN LANGDON, M.D.
THOMAS J. DOLAN, M.D. FRANK I. MATTEO, M.D
WALTER S. JONES, M.D. HENRY E. UTTER, M.D.

MONTHLY AVERAGES OF CERTIFIED MILK FOR 1950

	CHERRY HILL H. P. HOOD			FAIROAKS						HAMPSHIRE HILLS			WALKER-GORDON		
	Pasteurized			Raw			Pasteurized			Pasteurized			Vit. D. Pasteurized		
	B.F.	T.S.	Bacteria per C.C.	B.F.	T.S.	Bacteria per C.C.	B.F.	T.S.	Bacteria per C.C.	B.F.	T.S.	Bacteria per C.C.	B.F.	T.S.	Bacteria per C.C.
January	3.8	12.65	7	4.1	13.00	7,683	3.9	12.78	11	4.0	12.89	5	4.0	12.65	10
February	3.8	12.64	4	4.1	13.12	7,933	3.9	12.81	10	4.0	12.93	3	4.0	12.79	7
March	3.8	12.63	4	4.1	13.17	7,272	3.7	12.87	6	4.0	12.93	5	3.9	12.70	8
April	3.8	12.52	12	4.1	12.94	6,161	3.8	12.51	9	3.9	12.57	4	3.9	12.61	6
May	3.8	12.72	9	4.2	12.99	6,016	3.9	12.63	5	3.9	12.72	3	3.9	12.60	9
June	3.8	12.63	19	3.9	12.68	5,443	3.7	12.42	18	3.9	12.68	19	3.9	12.65	12
July	3.8	12.48	5	4.1	12.79	5,431	3.9	12.44	42	3.8	12.60	35	3.9	12.63	15
August	3.7	12.30	4	4.0	12.69	5,110	3.7	12.23	57	3.9	12.65	13	4.0	12.68	16
September	3.7	12.56	14	4.2	12.86	7,287	4.0	12.58	14	4.0	12.76	10	3.8	12.50	90
October	3.8	12.56	9	4.2	12.80	4,983	3.9	12.51	20	4.0	12.82	9	3.9	12.53	11
November	3.8	12.50	3	4.1	12.66	6,266	3.9	12.29	25	3.9	12.52	7	3.9	12.54	9
December	3.9	12.63	6	4.2	12.85	4,850	3.7	12.41	10	3.9	12.71	4	3.9	12.56	6
Yearly Average	3.8	12.57	8	4.1	12.88	6,202	3.8	12.54	19	3.9	12.73	10	3.9	12.62	17

PRE-SCHOOL EXAMINATIONS

continued from page 164

consensus of opinion of the Pre-School examination committee that the entire school examination and health program should be evaluated and that a program should be set up with that in view.

Respectfully submitted,

JOSEPH SMITH, M.D., *Chairman*
CHARLES B. LEWIS, M.D.
ROBERT M. LORD, M.D.
MERLE M. POTTER, M.D.
JOHN T. MONAHAN, M.D.
MORRIS BOTVIN, M.D.
AMY RUSSELL, M.D.

COMMITTEE ON ENTERTAINMENT

On Wednesday, September 13, at the Agawam Hunt Club, the annual dinner and golf tournament proved to be a success. The tragic fire at the Rhode Island Country Club necessitated a last minute shift of scene. This was accomplished with very little difficulty due to the efforts of Mr. Farrell and the club stewards.

There were 145 members and guests present at the dinner and a great number of these took advantage of the weather to play in the golf events. Dr. J. A. Hindle won the President's trophy with Dr. Dewitt and Dr. David Freedman close contenders. Dr. Charles Dotterer won the low gross with Drs. Lenzner, F. Hanley and J. V. Moran close behind. The low net winners were Drs. Chappis, C. J. Riley, William Davis and R. Haverly. Winners of special prizes were Drs. R. E. Stevens, W. C. Gordon, E. Hackman, and J. Castrovano.

Entertainment was supplied by the internationally famous trick shot golfer, Jack Redman. The first part of his program was on the golf course where he demonstrated many golf shots with a variety of trick clubs. Several of the members were called on for assistance which proved to be quite humorous. After the dinner a series of movies about golf were shown.

At the dinner a few short speeches were in order and prizes were given out, which had been generously donated by friends of the Association.

Respectfully submitted,

W. J. H. FISCHER, JR., M.D., *Chairman*
NATHAN A. BOLOTOW, M.D.
HERMAN P. GROSSMAN, M.D.
RALPH DILEONE, M.D.
HARRY E. DARRAH, M.D.

ADVISORY COMMITTEE TO THE COMMUNITY WORKSHOPS

During 1950 there has been no meeting of the full committee. The Executive Committee of the Community Workshops has consulted the chairman of your committee on occasion, and members of your committee have assisted the Community Workshops in a number of matters which did not require concerted action.

Respectfully submitted,

CLIFTON B. LEECH, M.D., *Chairman*
RAYMOND F. HACKING, M.D.
WILLIAM A. HORAN, M.D.
LOUIS A. SAGE, M.D.
EDWIN GAMMELL, M.D.
CATHERINE ZOURABOFF, M.D.
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BOOK REVIEWS

PROCEEDINGS OF THE FIRST CLINICAL ACTH CONFERENCE by John R. Mote, M.D., Editor. The Blakiston Company, Phil., 1950. Price $5.50.

As the name implies this book is an outline of the proceedings of the first conference on the clinical use of ACTH (adrenocorticotrophin) called by Armour Company*, in 1949, to assemble the information on the early work of various investigating groups. The investigators represented the foremost research groups in the leading medical centers and medical schools in the country.

The overall content of the book amounts to a clinical report of the metabolic and physiological effects produced by stimulating the adrenal glands with ACTH under various conditions.

These conditions cover a wide range of clinical conditions, various periods of life in normal individuals, nearly all of the known glandular abnormalities, chronic diseases of unknown origin, collagen diseases including rheumatoid arthritis and a variety of miscellaneous diseases.

Each individual study represents for the most part observations on a small group of cases. With few exceptions presentations are brief, clear cut, and scientifically accurate. Conclusions are generally justified. Although the style of presentation is roughly the same for all reporting groups there is emphasis on clinical effects as well as laboratory effects and the latter is technically not "too scientific".

This book of proceedings is a valuable addition to the "must" reading of the student, the research worker, and the internist. It certainly concerns itself with the "modernistics" of therapy.

W. J. O'C.

*(Producers of ACTH)

A TEXT-BOOK OF X-RAY DIAGNOSIS by British Authors. Edited by S. Cochrane Shanks, M.D., F.R.C.P., F.F.R. and Peter Kerley, M.D., F.R.C.P., F.F.R., D.M.R.E. Volume IV: THE BONES, JOINTS AND SOFT TISSUES. Second edition. Price $15.00. W. B. Saunders Company, Phil., 1950.

The first edition of this valuable and comprehensive text of x-ray diagnosis was published over ten years ago. There have been six reprintings of the original edition indicating the great demand for this type of volume. The second edition has been completely rewritten and brought up to date following the plan of the original. The text is confined primarily to diagnosis, therefore radiation physics has been completely eliminated and only essential details of technic are included.

The fourth volume on the bones and joints and soft tissues is conveniently divided into eleven parts for ready reference as follows: Part One, *The Normal Bones and Joints;* Part Two, *The General Pathology of Bone;* Part Three, *Congenital Deformities of Bones and Joints;* Part Four, *Traumatic Lesions of the Bones and Joints;* Part Five, *Inflammatory Diseases of the Bones and Joints;* Part Six, *Osteochondritis;* Part Seven, *Static and Paralytic Lesions, the Intervertebral Discs: Orthopedic Operations;* Part Eight, *Constitutional Diseases of Bones and Joints;* Part Nine, *Tumors and Cysts;* Part Ten, *The Soft Tissues;* Part Eleven, *The Localization of Foreign Bodies.*

The text is well written. It is an up-to-date survey in this progressive field of x-ray diagnosis. It is concise yet comprehensive and authoritative. It is profusely illustrated with excellent and characteristic material. This volume should be well worth while in the library of every radiologist and orthopedic surgeon. It is an excellent text for students and a ready reference for other specialists and general practitioners.

RUSSELL R. HUNT, M.D.

TEACHING THE RETARDED CHILD AT HOME by Edna Davison Osterhout, B.A. Price $2.25. Duke University Press, Durham, N. C. 1950.

This book is meant to be a home guide for parents of children who are so retarded that they cannot progress beyond the first few grades in ordinary schools. It is an outline of lessons to be given the child in various subjects and areas: reading, writing, spelling, numbers, handwork, games, etc. Although the suggestions on the teaching of beginning of writing of letters and numbers are genuinely helpful — actually there is nothing particularly new or revealing in these pages. The pages on reading and spelling are much like those that can

be found in any of the current beginning workbooks, except that the latter may have greater detail and opportunity for drill and show more steadily progressive purpose.

Parents of mentally deficient children must first be given help in the area of acceptance and understanding of the child. The parents must be shown how they can increase the child's experience so that the child can be trained for practical living in a group in which he finds himself.

This booklet would be more valuable if there were a chapter on the causes of mental retardation, discussing it in a manner which would be helpful to parents. For instance, an explanation about the possible effects of adverse environmental conditions such as German measles during early pregnancy does much to remove the stigma of having a retarded child and aids in acceptance. The different approach in handling a child with an endogenous deficiency from one resulting from brain damage is worthy of discussion. Similarly, the effect of love and security on intellectual functioning should be emphasized.

There are enough children who need help of the type offered by the author of this book to make us utilize more the information which is accumulating in this challenging field.

ERIC DENHOFF, M.D.

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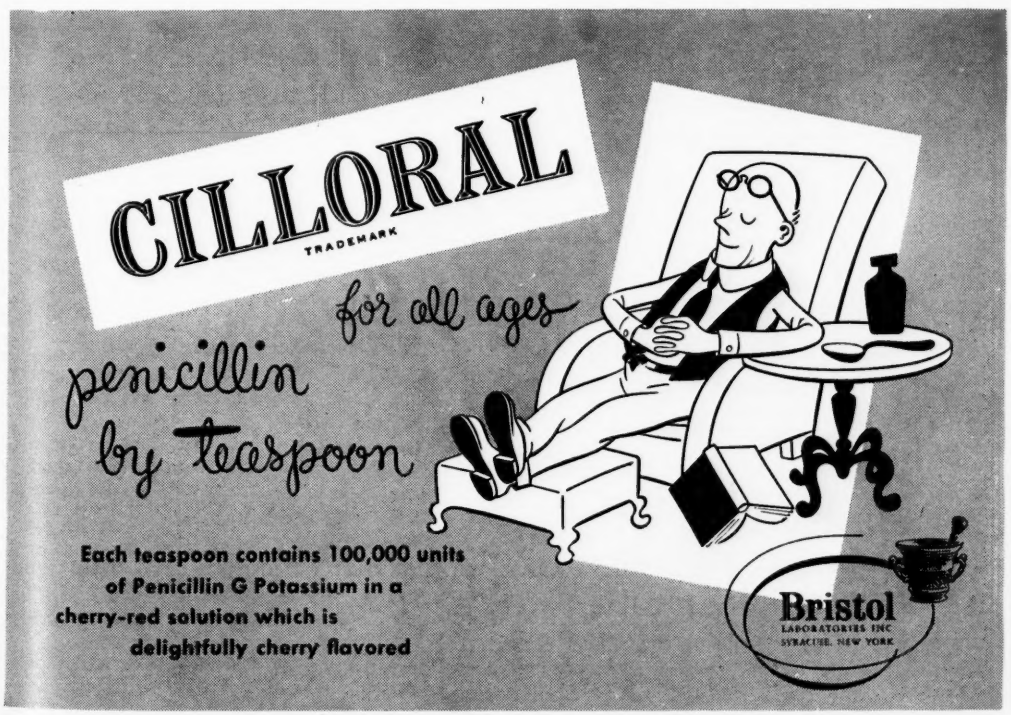

Check These Dates Now...

MONDAY, April 2 . .

Regular Meeting of the Providence Medical Association, at the Medical Library, at 8:30 p.m.

Program: *"Management of the Infertile Couple"*

WEDNESDAY, April 11 . . .

Medical-Dental Lecture, Albertus Magnus Hall, Providence College, at 8 p.m.

Program: *"Mass Fluoridation of Water Supplies"*

MONDAY, April 30 . . .

Meeting of the Providence Medical Association, at the Medical Library, at 8:30 p.m. (This meeting held instead of scheduled first Monday in May to avoid conflict with annual meeting plans of the R. I. Medical Society.)

WEDNESDAY, May 9 and THURSDAY, May 10 . . .

140th ANNUAL MEETING, The Rhode Island Medical Society. At the Medical Library.

SUNDAY, June 10 . . .

American Medical Association Annual Sessions, at Atlantic City, N. J. All this week.

COMMITTEES OF THE PROVIDENCE MEDICAL ASSOCIATION FOR 1951

Advisory Committee to the Community Workshops, Inc.
Clifton B. Leech, M.D., *Chairman*
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Maurice W. Laufer, M.D.
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105 Waterman Street Providence, R. I.

VINCENT J. RYAN, M.D.
Practice limited to
Dermatology and Syphilology
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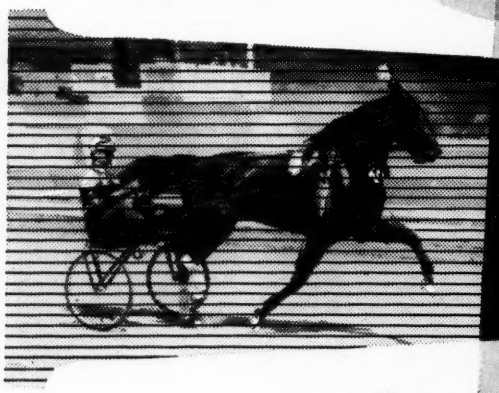

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